

**Teacher's Guide**

**COMPUTER  
APPLICATIONS  
TECHNOLOGY**

**11**



**basic education**

Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA



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*As an organisation rooted in technology, we believe in providing a new bold digital world to the communities we operate in. This unique digital book provides the fundamental knowledge necessary for a sound grounding from which to make practical use of the complete and indispensable application-oriented information regarding Computer Applications Technology (CAT) and Information Technology (IT). It is a foundational reference for today's secondary school learners and teachers alike - as well as for the next generation of CAT and IT students.*

**Computer Applications Technology Teacher's Guide Grade 11**  
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# INTRODUCTION TO CAT

Welcome to the *CAT Grade 11 Teacher's Guide*. This book was developed to guide teachers and provide suggested answers that can be used when assessing learners throughout the year.

The *CAT Grade 11 Theory Book* and the *CAT Grade 11 Practical Book* provide learners with interesting, stimulating and challenging learning activities that have been carefully designed and developed so that there is a clear progression of knowledge and skills throughout the FET Phase. These books will make Computer Applications Technology an interesting, exciting and meaningful subject that learners will enjoy.

The *CAT Grade 11 Teacher's Guide* has been designed so that teachers are able to observe and assess their learners' progress and take any corrective measures when necessary. This book is aligned to the CAPS curriculum.

On pages viii – xi you will find the Annual Teaching Plan, which outlines the units, activities and timeframe allocated for each chapter.

## HOW THE TEACHER'S GUIDE IS STRUCTURED

Each **Theory** chapter is indicated by this colour:

TERM 1

## BASIC CONCEPTS OF COMPUTING

CHAPTER 1

**CHAPTER OVERVIEW**

Unit 1.1	General model of a computer
Unit 1.2	Hardware and software
Unit 1.3	Types of computers
Unit 1.4	Advantages and disadvantages of using computers
Unit 1.5	Data and information management

The following learning outcomes are covered by this chapter:

- define Information and Communication Technologies (ICTs) and Information Technology
- provide an overview of a general model of a computer

Each **Practical** chapter is indicated by this colour:

**TERM 1**

# ALGORITHMS

**CHAPTER 1**

**CHAPTER OVERVIEW**

Unit 1.1	Basics of algorithms
Unit 1.2	Algorithm quality
Unit 1.3	Creating algorithms
Unit 1.4	Flowcharts

The following learning outcomes are covered by this chapter:

- explain what an algorithm is
- give examples of algorithms in everyday life
- produce an algorithm to solve a problem
- test algorithms to determine the quality and accuracy
- compare algorithms considering, for example, order and precision
- use tools, such as a basic flowchart to represent an algorithm

For each chapter we have indicated what resources you will need and the teaching time allocated for the content in the CAPS curriculum.

Each unit then has suggested answers for the activities in the Theory and Practical Books.

**GRADE:** 10      **DATE:**      **TEACHING TIME:** 4 hours

<b>Resources</b>	Each learner should have access to: <ul style="list-style-type: none"> <li>IT 10 Practical Book</li> <li>IT 10 Theory Book</li> <li>QR Code Reader</li> <li>Computer with Delphi IDE loaded onto it</li> </ul>
<b>Vocabulary</b>	Learners will need to understand the following terms for this chapter: <ul style="list-style-type: none"> <li>input device – any hardware or peripheral device that allows you to enter data into computer or interact with a computer</li> <li>storage device – a hardware device that is used for storing data</li> <li>random-access memory (RAM) – a hardware device on a computer motherboard, that allows information to be stored and retrieved on a computer</li> <li>processing device – a hardware device that processes a set of instructions, and the results of the processing</li> <li>output device – a device that allows the computer to present information in a form understandable to a user</li> <li>communication device – is a device that allows a computer to send or receive a signal over a wire or wireless network</li> <li>RSI (Repetitive Strain Injury) – a condition that often results from overuse, and affects the hand, wrist, and forearm</li> <li>ergonomics – the study of how people interact with their environment, the goal is to create an environment that is safe, comfortable, and efficient for the user</li> </ul>

**UNIT 1.1 Basics of algorithms**

Have a class discussion on the list of instructions that the learners would give for each task. Explain that each task is made up of 'algorithms' or a set of instructions e.g. to call a friend:

- pick-up the phone
- type in the phone number or locate the phone number on the contact list
- tap on the call button
- wait for your friend to answer
- reply

It is important that learners understand computer programs are simply lists of instructions (algorithms). If an algorithm is not correct, it will cause an error in the program you are writing.

**Example 1.1**

Learners discuss the algorithm to make a cup of hot chocolate and what to do if it is not exactly to their taste. Learners think and talk to their friend about how their algorithm for making hot chocolate (or coffee or tea) would be different to the one in the example.

**Activity 1.1 Memorandum**

1.1.1 Learners follow the algorithm.

1.1.2 Learners compare their picture with their partner and discuss:

- Are your pictures different? Yes
- Can you explain why? Learners interpreted the drawings differently
- What was difficult about following the instructions? The instructions were not specific enough
- What was missing from the instructions? The instructions missed details such as the direction for each line, or its angle to the previous line, its length and so on

## ANNUAL TEACHING PLAN - OVERVIEW OF TERMS (THEORY)

LAYOUT	DESCRIPTION	HOURS	TERM
<b>Topic 1</b>	<b>Systems technologies</b>		
Chapter 1	General concepts of computing	2 hours	1
Chapter 2	Input, output and other devices	8 hours	1
Chapter 3	Storage, memory and processing devices	2 hours	2
Chapter 4	Software	2 hours	3
Chapter 5	Hardware, software and computer management	2 hours	3
<b>Topic 2</b>	<b>Social implications</b>		
Chapter 6	Social implications of hardware	2 hours	1
Chapter 8	Social implications of computer networks	2 hours	2
Chapter 9	Errors and bugs	2 hours	3
Chapter 10	Social issues and online protection	2 hours	4
<b>Topic 3</b>	<b>Network technologies</b>		
Chapter 7	Networks and internet technologies	8 hours	2
<b>Topic 4</b>	<b>Internet technologies</b>		
Chapter 11	Internet and the World Wide Web	6 hours	3
Chapter 12	E-communications	2 hours	4
<b>Topic 5</b>	<b>Information management</b>		
Chapter 14	Information Management	10 hours	2 & 3



## ANNUAL TEACHING PLAN - OVERVIEW OF TERMS (PRACTICAL)

LAYOUT	DESCRIPTION	HOURS	TERM
<b>Topic 6</b>	<b>Solution development</b>		
<b>Module 1</b>	<b>Word processing</b>	<b>20 hours</b>	
Chapter 1	File management in word processing	12 hours	1
Chapter 2	Templates and input data in word processing		1
Chapter 3	Editing		1
Chapter 4	Page and document layout		1
Chapter 5	Electronic forms and online/offline help		2
Chapter 6	Styles	4 hours	2
Chapter 7	Mailings and references	4 hours	3
<b>Module 2</b>	<b>Spreadsheets</b>	<b>24 hours</b>	
Chapter 8	Spreadsheet formatting	12 hours	1
Chapter 9	IF functions and charts	6 hours	2
Chapter 10	Working with spreadsheets	4 hours	3
Chapter 11	Templates and integration	2 hours	4
<b>Module 3</b>	<b>Databases</b>	<b>18 hours</b>	
Chapter 12	Introduction to databases	8 hours	1
Chapter 13	Tables and queries	4 hours	2
Chapter 14	Reports	6 hours	3
<b>Module 4</b>	<b>HTML and web design</b>	<b>8 hours</b>	
Chapter 15	Introduction to HTML	4 hours	4
Chapter 16	Principles of web design	6 hours	3

TERM 1							
Week	Possible dates	Hours	Topic	Chapters	Informal activities	Date started	Date completed
		2	1. Systems technologies	Chapter 1: General concepts of computing	ACT 1.1, ACT 1.2, ACT 1.3, ACT 1.4		
		8	1. Systems technologies	Chapter 2: Input, output and other devices	ACT 2.1, ACT 2.2, ACT 2.3		
		2	2. Social implications	Chapter 6: Social implications of hardware	ACT 6.1, ACT 6.2, ACT 6.3, ACT 6.4		
		12	6. Solution development	Chapter 1: File management in word processing	ACT 1.1, ACT 1.2, ACT 1.3, GA 1.1, GA 1.2, GA 1.3, GA 1.4, GA 1.5, GA 1.6		
			6. Solution development	Chapter 2: Templates and input data in word processing	ACT 2.1, ACT 2.2, ACT 2.3, GA 2.1, GA 2.2, GA 2.3, GA 2.4		
			6. Solution development	Chapter 3: Editing	ACT 3.1, ACT 3.2		
			6. Solution development	Chapter 4: Page and document layout	ACT 4.1, ACT 4.2, ACT 4.3, GA 4.1, GA 4.2, GA 4.3, GA 4.4, GA 4.5, GA 4.6 GA 4.7, GA 4.8 GA 4.9		
			6. Solution development	Chapter 5: Electronic forms and online/offline help	ACT 5.1, GA 5.1, GA 5.2, GA 5.3		
		12	6. Solution development	Chapter 8: Spreadsheet formatting	ACT 8.1, ACT 8.2, ACT 8.3, ACT 8.4, ACT 8.5, GA 8.1, GA 8.2, GA 8.3, GA 8.4 GA 8.5		
		8	6. Solution development	Chapter 12: Introduction to databases	ACT 12.1, ACT 12.2, ACT 12.3, ACT 12.4, ACT 12.5, ACT 12.6, GA 12.1, GA 12.2, GA 12.3, GA 12.4, GA 12.5		

**TERM 2**

Week	Possible dates	Hours	Topic	Chapters	Informal activities	Date started	Date completed
		2	1. Systems technologies	Chapter 3: Storage, memory and processing devices	ACT 3.1, ACT 3.2, ACT 3.3		
		8	3. Network technologies	Chapter 7: Networks and internet technologies	ACT 7.1, ACT 7.2, ACT 7.3, ACT 7.4		
		2	2. Social implications	Chapter 8: Social implications of computer networks	ACT 8.1, ACT 8.2, ACT 8.3		
		5	5. Information management	Chapter 13: Information management	ACT 13.1, ACT 13.2, ACT 13.3		
		4	6. Solution development	Chapter 6: Styles	ACT 6.1, ACT 6.2, GA, 6.1, GA 6.2, GA 6.3		
		6	6. Solution development	Chapter 9: If functions and charts	ACT 9.1, ACT 9.2, ACT 9.3, ACT 9.4, ACT 9.5, GA 9.1, GA 9.2, GA 9.3, GA 9.4, GA 9.5, GA 9.6, GA 9.7, GA 9.8, GA 9.9, GA 9.10, GA 9.11, GA 9.12		
		4	6. Solution development	Chapter 13: Tables and queries	ACT 13.1, ACT 13.2, GA 13.1, GA 13.2, GA 13.3, GA 13.4, GA 13.5		
		4	6. Solution development	Chapter 16: Principles of web design	ACT 16.1, ACT 16.2, GA 16.1, GA 16.2		

**TERM 3**

Week	Possible dates	Hours	Topic	Chapters	Informal activities	Date started	Date completed
		2	1. Systems technologies	Chapter 4: Software	ACT 4.1, ACT 4.2, ACT 4.3, ACT 4.4, ACT 4.5		
		2	1. Systems technologies	Chapter 5: Hardware, software and computer management	ACT 5.1, ACT 5.2, ACT 5.3		
		2	2 Social implications	Chapter 9: Errors and bugs	ACT 9.1, ACT 9.2, ACT 9.3, ACT 9.4		
		6	4. Internet technologies	Chapter 11: Internet and the World Wide Web	ACT 11.1, ACT 11.2, ACT 11.3, ACT 11.4, ACT 11.5		
		5	5. Information management	13: Information management	ACT 13.4, ACT 13.5, GA 13.1, Case Study 13.1		
		4	6. Solution development	Chapter 7: Mailings and references	ACT 7.1, ACT 7.2, ACT 7.3, ACT 7.4, ACT 7.4, ACT 7.6, GA 7.1, GA 7.2, GA 7.3, GA 7.4, GA 7.5, GA 7.6, GA 7.7, GA 7.8, GA 7.9, GA 7.10, GA 7.11, GA 7.12		
		3	6. Solution development	Chapter 10: Working with spreadsheets	ACT 10.1, ACT 10.2, ACT 10.3, GA 10.1, GA 10.2, GA 10.3, GA 10.4, GA 10.5, GA 10.6, GA 10.7, GA 10.8, GA 10.9, GA 10.10		
		6	6. Solution development	Chapter 14: Reports	ACT 10.1, ACT 10.2, ACT 10.3, GA 10.1, GA 10.2, GA 10.3, GA 10.4, GA 10.5, GA 10.6, GA 10.7, GA 10.8		
		6	6. Solution development	Chapter 17: Principles of web design	ACT 17.1, ACT 17.2, GA 17.1, GA 17.2		

**TERM 4**

Week	Possible dates	Hours	Topic	Chapters	Informal activities	Date started	Date completed
		2	2. Social implications	Chapter 10: Social issues and online protection	ACT 10.1, ACT 10.2, ACT 10.3, ACT 10.4, ACT 10.5, GA 10.1, GA 10.2, GA 10.3		
		2	4. Internet technologies	Chapter 12: E-communication	ACT 12.1, ACT 12.2, GA 12.1, GA 12.2, GA 12.3, GA 12.4, GA 12.5, GA 12.6, GA 12.7, GA 12.8, GA 12.9, GA 12.10, GA 12.11, GA 12.12, GA 12.13, GA 12.14, GA 12.15		
		2	6. Solution development	Chapter 11: Templates and integration	ACT 11.1, ACT 11.2, ACT 11.3, GA 11.1, GA 11.2		
		4	6. Solution development	Chapter 15: Introduction to HTML			

## HOW THE TEACHER'S GUIDE WORKS

The information you may need for each lesson and some general things that may assist you in your day-to-day teaching is given in this Teacher's Guide.

We will start by:

- Explaining how the practical and theory textbooks work.
- Providing various best practices as per DBE booklets.
- Providing general tips, links and ideas that you can use.

After the general section, each module will focus on the following if available:

- Tips and ideas on presenting the specific information.
- Links to additional information.
- Links to websites for additional activities.
- Memorandum for the activities.

## HOW THE TEXTBOOK WORKS

There are two textbooks for each grade, a theoretical textbook and a practical textbook, of which both are available in printed format as well as electronic format. The information in these textbooks are combined in learner-friendly topics, that are divided into chapters and units as per school term.

Teaching elements used in these textbooks are:

- Additional information – Information that the teacher can use to explain certain concepts to the learners that are not covered in the books.
- Box – information that does not flow directly from the text, but forms part of the overall concept.
- Case studies – this can be used in class to support the information covered in the unit. The questions should be discussed with the learners in class or can be given as an informal activity.
- Glossary – a summary of all keywords given at the end of each module.
- Guided activities – the guided activities are step-by step procedures on various computing tasks and should be done together with the learners. It is strongly recommended that each learner does the activities on their own computers.
- Learning outcomes – a description of what is covered in the chapter as relevant to CAPS.
- Practical activities – provide opportunities to the learners to apply their skills.
- QR codes – it provides the learner with links to optional videos or additional reading materials. Learners must have a QR reader on their smartphones to read these codes.
- Revision activities – a self-assessment covering the most important information and skills focussed on in the chapter.
- Something to know – boxes in the margin of the book containing information not covered in the main text, but important for the learners to know.
- Theoretical activities – provide learners the opportunity to recap, review and reinforce what they have learned. These activities are mainly theoretical activities but may include group or pair projects as well as research activities.

## BEST PRACTICES – LESSONS FOR THE CLASSROOM

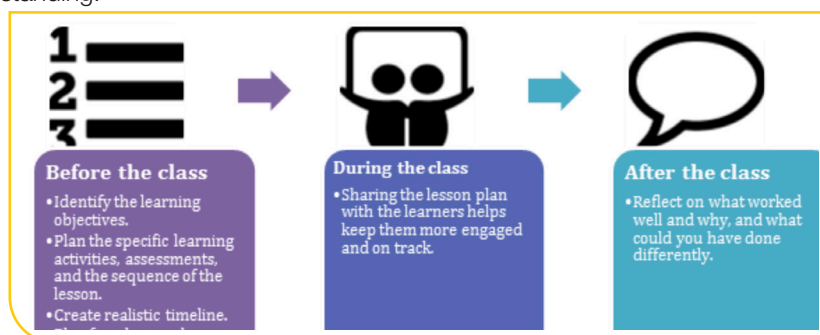
The following information was obtained from a study that was done for the DBE on *Successful teaching and learning in information technology – Best practices in the classroom*.

### PLANNING

Although the curriculum or CAPS tells you WHAT you will be teaching, and in which SEQUENCE you should teach it, it does not explain HOW you should teach it or which TEACHING STRATEGIES you should apply. That is where proper and detailed planning of each lesson comes in, breaking up the instruction into small enough chunks of information so that the learners can link it to existing knowledge and synthesise the new knowledge into their understanding.

Planning addresses and integrates the following three key components:

- Learning objectives.
- Learning activities.
- Informal assessment to check for learner understanding.



When doing your planning, it is important that you look at the bigger picture.

The following provides guidelines for effective planning:

- Start with the end in mind – What does the learner need to know and be able to do? Learning goals and objectives.
- Identify curriculum resources – (e.g. textbook) – Does the textbook provide everything needed to achieve the learning goals or does one have to develop/find additional content or activities? What other resources will be needed, e.g. previous exam papers?
- Identify declarative knowledge – Think about the concepts and ideas learners will need to know. What are developmentally appropriate given the learners’ background knowledge and prior learning?
- Identify procedural knowledge – Skills, strategies and processes. Procedural knowledge incorporates the use of declarative knowledge.
- Create, find and select learning activities and assignments – Activities are the instructional strategies that allow teachers and learners to interact with content, skills and materials. The goal of classroom activities is to help learners to interact with new knowledge and skills, deepening their understanding and raising skill levels related to the learning goal(s). Activities often require teacher coaching or guidance. When planning classroom activities, start by selecting the instructional strategies that allow learners to process critical information or vocabulary associated with the learning goals first, i.e. which subject terminology or concepts will be introduced, and when?

### COMPUTATIONAL THINKING

Computational thinking is a problem-solving approach that has particular reference to the practical component of the CAT curriculum. Elements of Computational Thinking which are relevant to CAT are:

ELEMENT	DESCRIPTION	EXAMPLE
Decomposition	Breaking a problem down into smaller, more manageable parts.	Breaking a complex Excel formula down into simpler “building blocks”.
Pattern recognition	Observing patterns and trends.	Using functions and techniques learned in one package, in another package, e.g. the formula to calculate someone’s age is very similar in both Excel and Access.

## ASSESSMENTS

Assessment drives instruction and learning by providing relevant information on the learners' progress and performance. Its main purpose is to support and improve further learning by incorporating artefacts, illuminating various processes, checking in at multiple waypoints and placing value on multiple ways of knowing. Assessment should be both informal/daily (assessment for learning) and formal (assessment of learning).

To make sure that tests and examinations are applicable to all learners, you should use Blooms Taxonomy as described below according to the DBE's Computer Applications Technology SBA Exemplar Booklet. Teachers who are successful also analyse mistakes made by the learners in tests and examinations to inform teaching and to follow-up through improvement strategies.

The following three documents should be consulted with regard to assessment in CAT:

1. The CAPS for CAT
2. The Computer Applications Technology SBA Exemplar booklet published by the DBE
3. The Exemplar Book on Effective Questioning: Computer Applications Technology published by Umalusi.

### COGNITIVE LEVELS OF LEARNERS (BLOOM'S TAXONOMY)

The cognitive demand of a question refers to the type and level of thinking learners need to successfully engage with and answer a question.

- High cognitive questions are those which demand that the learners manipulate bits of information previously learnt to create and support an answer with logically reasoned evidence. This sort of question is generally interpretive, evaluative, inquiry-based, inferential, synthesis-based and open-ended.
- Lower cognitive questions are more basic. They ask learners to recall material previously presented and learnt. These questions are generally direct, closed, recall-related and that measure knowledge only – factual and process.

Bloom's revised taxonomy illustrates the different cognitive levels.

COGNITIVE LEVEL		COMMENT	CONTEXT
<b>C1</b>	Knowledge Recall of factual/process Knowledge in isolation, i.e. one step/set of steps/ instruction/ process at a time	Requires recalling or recognising only. Practised or learnt the isolatable bit, e.g. fact/skill/ process/steps before.	Exactly the same context as a textbook example or a classroom-based exercise. Explicitly part of the curriculum.
<b>C2</b>	Understanding Convert from one form of representation to another.	Requires knowledge and understanding of steps/process/ isolatable bits. Translating 'words', pictures, symbols, diagrams into e.g. programming code.	Familiar context. Includes interpreting, exemplifying, classifying, summarising, inferring, comparing and explaining.
<b>C3</b>	Application Using known routines/steps/ processes to complete a task. All the information required is immediately available to the learner.	Requires knowledge, understanding and use of steps/ routines/ processes. Application of appropriate abstraction without having to be prompted...and without having to be shown how to use it in a familiar context.	Familiar context but with new elements/new circumstances. Learners have seen the same or very similar steps working with different data or other circumstances.



COGNITIVE LEVEL		COMMENT	CONTEXT
<b>C4</b>	Analysis Understand how parts relate to a whole (pinpoint the core/main aspects) or interact with each other and use appropriate methods to complete task/solve problem.	Requires reasoning/ investigation/ developing a plan or algorithm; has some complexity. Completing task could have more than one possible approach. Organising component parts to achieve an overall objective.	New context. Unseen, unfamiliar problems or tasks.
<b>C5</b>	Evaluation Judging or deciding according to some set of criteria, generally without real right or wrong answers	Requires weighing possibilities, deciding on most appropriate. Testing to locate errors.	
<b>C6</b>	Create Putting elements together to form a coherent or functional whole or re-organising elements into a new pattern or structure.	Requires familiarisation with the task by exploring different approaches and interpreting and analysing relevant approaches. Generalisation.	Novel situation. The learner has no familiarity with completed functional whole.

In CAT, the above cognitive levels are collapsed providing for lower-order, middle-order and higher-order levels.

	LOWER ORDER C1	MIDDLE ORDER C2 & C3	HIGHER ORDER C4, C5 & C6
Theoretical	Recall (Knowledge)	Understand and apply	Analyse, evaluate and create
Practical	Routine procedures (Knowledge/Remembering)	Multi-step procedures (Understanding/Applying)	Problem-solving (Analysing/Evaluating/Creating)
Weighing	30%	40%	30%

Cognitive demand describes the type of thought process that is required to answer a question and is not necessarily the same as the level of difficulty of a question, such as the difficulty of the content knowledge that is being assessed.

#### DIFFICULTY LEVELS

As per the same booklet, the difficulty level of a question refers to the ease with which a learner is able to answer a question. It is described as follows:

LEVEL	DESCRIPTION
1	Easy to answer
2	Moderately challenging
3	Difficult to answer
4	Very difficult (It allows high achieving learners to excel above the others)

The difficulty level of a question is influenced by one or more of the following:

- The content (subject, concept, facts, principles or procedures), e.g.
  - Content that is learnt in Grade 10 and that is repeated and practised in Grade 11 and 12 usually becomes easier by Grade 12.
  - The number of steps required, or the length of the answer could influence difficulty.
- Stimulus (item or question)
  - The language, text or scenario used could influence difficulty.
  - Re-read required or limited time could influence difficulty.

- Short questions vs paragraphs or essays – answers that require extended writing are generally more difficult.
- Steps provided or scaffolding of questions – open-ended questions are generally more difficult than structured questions, i.e. questions that lead or guide learners.
- Expected response
  - Mark scheme, memo, e.g. detail required in memo vs detail expected in question.
  - Allocation of marks.

Consult the Umalusi Exemplar Book on Effective Questioning: Computer Applications Technology for more information on difficulty levels.

### PRACTICAL ASSESSMENT TASK (PAT)

PAT forms an important part of the learners' learning experience as it consolidates the content done throughout the year and helps learners to make connections and see the relevance of what they learn. The DBE is providing guidelines for PAT each year. These guidelines are usually sent out to schools by the district or provincial CAT advisor.

### EXAM PREPARATION – TIPS FOR THE TEACHER

Here are some tips on what you can do to prepare your learners for their exams.

- Prepare ahead and make sure that you have an organised schedule covering all the revision work throughout the year. Do not wait till the last minute and then try to cram everything in before the exam. This will also give you the time to include a wider variety of activities to keep the learners' interest.
- Make sure that the learners know and understand what to expect in the exam. This does not only refer to the content of the exam, but also to what is expected of them with each section of the exam. This means they must know how to read and answer multiple choice questions, long questions, true/false questions, etc.
- Narrow the topics down as much as you can so that learners have a clear view of what to expect in the exam. You can even give them a list of topics that they can focus on – even if it is a list of all the topics they covered throughout the year. A list helps them to focus as they can tick items off as they go through the work.
- Make sure that the learners do the work during this period and not you. The more involved they are, the better they will learn.
- Keep your revision activities interesting and use a variety of activity types such as quizzes and other review games. It is here where you can use tools like Kahoot! or Google Quiz with great success. You can also have learners write quizzes for each other as they engage much deeper with the content when they have to write a quiz.
- Teach the learners exam techniques and the meaning of specific keywords that may be used in an exam.

CLUE WORD	WHAT YOU NEED TO DO	EXAMPLE
Analyse	Separate, examine and interpret	Analyse the correct use of word processing features in the following screenshot:
Categorise	Group concepts/ideas that are similar/have the same characteristics/functions or belong together. How should things be organised	Categorise the following computer devices: keyboard, CPU, printer, mouse, hard drive, SSD according to their main function.
Classify	Divide into groups or types so that things that are similar, are in the same group	Classify the following list of computer devices as input, output or storage devices
Comment on	Write generally about	Comment on the use of a wireless network in the following case:

THEORETICAL PAPERS ...CONTINUED

CLUE WORD	WHAT YOU NEED TO DO	EXAMPLE
Compare	Point out or show both similarities and differences between things or concepts. Note that stating the same fact in opposite form, will not earn you another mark.	Compare ROM with RAM.
Contrast/ Distinguish	Explain what the difference between certain things are.	Contrast ROM and RAM or Distinguish between a PAN and a HAN
Define	Give a clear meaning of the concept.	Define phishing.
Describe	State in words (using diagrams where appropriate) the main points of a structure or process.	Describe phishing.
Diagram	Make or draw a diagram.	Diagram a generic ICT system.
Differentiate	Use differences to qualify categories.	Differentiate between ROM and RAM.
Discuss	Give a clear, detailed description of the focus topic.	Discuss the use of a PAN in a home office.
Elaborate	Explain in detail	Elaborate on the advice given to Mr X regarding buying a laser printer.
Evaluate	Express an opinion based on your findings	Evaluate the merit of buying computer X for person Y
Examine	Give a clear, detailed description of the focus topic.	Examine the two methods
Explain	Give a clear, detailed description of the focus topic.	Explain how phishing works.
Identify	Name the essential characteristics	Identify the port used to connect the printer.
Illustrate	Give examples to demonstrate or prove something.	Illustrate the information processing cycle.
Interpret	Give the intended meaning of	Interpret the tone of the email message given below: I hate you when you do this J
Justify	Give clear, detailed reasons for taking a particular position.	Justify the use of a table instead of tab stops in the following instance:
List	Write a list of items, with no additional detail.	List the types of information sources one could use when doing research.
Motivate	Provide a reason or justification for an answer or statement	Motivate the use of line and paragraph spacing when working in Word.
Name/ Mention	Write a list of items, with no additional detail.	Name one storage device.
Outline	Give a general summary. It should contain a series of main ideas supported by secondary facts. Show the organisation of the idea.	Outline the information processing cycle.

THEORETICAL PAPERS ...CONTINUED

CLUE WORD	WHAT YOU NEED TO DO	EXAMPLE
Order	Provide a chronological or value-based answer by listing several items (terms or events in correct sequence).	Order the storage media according to their capacity
Prove	Show by using an argument or logic or fact that something is true.	Prove that the majority of people like X by looking at the following survey results:
Relate	Show the connection between things, indicating how one causes or is like another	Relate the following terms and explanations:
Review	Give a survey or summary in which you look at the important parts or major points and criticise if necessary. Comment on what is given.	Review Mr X's monthly computer maintenance tasks.
State / Give	Write down information without discussion.	State the functions of the operating system.
Suggest / Recommend	Give your opinion and back it up with facts, reason or an explanation.	Suggest a computer configuration for Mr X.
Summarise	Give a brief, condensed description of the main ideas. Like developing an abstract.	Summarise the problems experienced in the following case:
Trace	Follow the development, progress or history of something, normally from the point of origin, typically in chronological order.	Trace the error in the spreadsheet calculations.

**Something to know:** Note that some clue words include or refer to other clue words.

- Give learners various ideas on how to study based on the different learning styles, i.e. visual (read and write), auditory or kinaesthetic. There is a quick quiz that learners can do on their own to determine their learning styles: <https://www.thestudygurus.com/learning-styles/>
- You can refer to the following link to get ideas on how the various types of learners should study to get the best results: [https://www.gavilan.edu/tutor/documents/StudyTipsforDifferentLearningStyles\\_000.pdf](https://www.gavilan.edu/tutor/documents/StudyTipsforDifferentLearningStyles_000.pdf)

LEARNING STYLES.

The term learning styles refers to the understanding that every student learns differently.

- Visual learners learn best through what they see and should use graphs, diagrams, mind maps and other graphical methods to learn.
- Auditory learners learn through what they hear and remember most things the teachers said in class. They should use audio and video clips or discuss or recite the information with someone.
- Read and write learners focus mostly on interacting with the text. They learn best by reading information and writing it out in their own words. They also learn by answering quizzes in writing as well as from annotated notes.
- Kinaesthetic learners learn by experiencing things and learn best by doing, using models, playing memory games, etc. They also learn by writing things down.

## EXAM PREPARATION - TIPS FOR THE LEARNERS

The following general notes and tips on how to prepare for exams can be printed and given to the learners.

- Make yourself a schedule so that you will have enough time to study. Do not leave everything until it is too late to study properly.
- Make sure that your study area is organised. Chaos distracts the brain from what it should be focussing on.
- Have all your materials ready before you begin studying – pencils, pens, highlighters, paper, etc.
- Study smaller chunks of information at a time. You will remember them better and for a longer period of time. Trying to learn too much at one time will only result in a tired, unfocused and anxious brain.
- Use visual aids to study, for example, draw mind maps, flowcharts and diagrams to help you remember things better or explain your answers and the reasoning for giving that answer to somebody else.
- Focus on the core material as about 80% of most exams are likely to come from it. Going through old exam papers will help you determine what this is. It will not only help you to study better, it will also show you how exam questions are formulated, and which type of questions are asked.
- Revise new information within 24 hours after you learnt it. Any new information must be recapped, reviewed and reinforced within 24 hours, otherwise you will lose 80% of what you learnt.
- Organise study groups for the various subjects, but make sure that the group members are committed to their studies.
- Make sure that you take regular breaks as your brain loses focus after a while. The optimal time to study consists of periods of 2 hours, broken down into 25 minutes of studying followed by 5-minute breaks. Do not think or do anything study-related during your breaks. Take a walk outside. A change of scenery will stimulate your learning.
- Keep some healthy snacks to nibble on while you are studying. Natural, fresh and vitamin-rich food is good for improving your concentration and memory.
- Drink a lot of water while you are studying to make sure that you do not dehydrate. Staying hydrated is essential for your brain to work at its best.
- Plan the day of your exam beforehand, especially if you are studying at home. Make sure that you know how long it will take you to reach the school during that time of the day and add some extra time to make sure that you are not going to be late.
- Make sure that you sleep sufficiently (7 to 8 hours a night). Proper sleep turns what you learnt (short-term memory) into long-term memory.

## STUDY SKILLS TO BOOST YOUR LEARNING

### Mobile notes

Mobile notes are excellent tools for learning all the key concepts in the study guide. Mobile notes are easy to make, and you can take them with you wherever you go:

- Fold a blank piece of paper in half. Fold it in half again. Fold it again.
- Open the paper. It will now be divided into eight parts.
- Cut or tear neatly along the folded lines.
- On one side of each of these eight bits of paper, write the basic concept.
- On the other side, write the meaning or the explanation of the basic concept.
- Use different colours and add pictures to help you remember.
- As you learn, place the cards in three different piles:
  - I know this information well.
  - I am getting there.
  - I need more practice.
- The more you learn them, the better you will remember them.

## Mnemonics

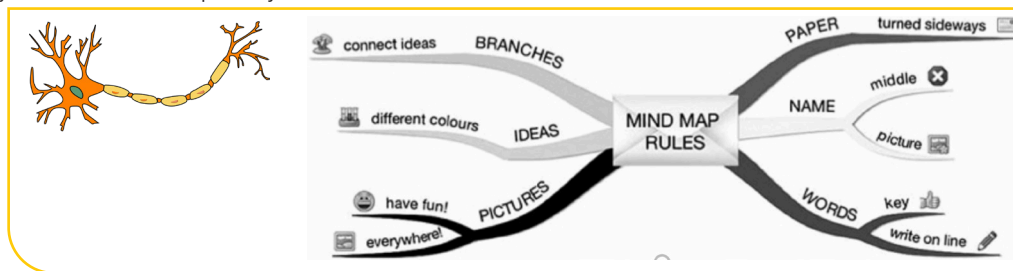
A mnemonic code is a useful technique for learning information that is difficult to remember. This is an example of a word mnemonic using the word BALANCE where each letter of the word stands for something else:

- B – Best – doing your best is more important than being the best.
- A – Attitude – always have a positive attitude.
- L – Load – spread the load so you do not leave everything to the last minute. Use a study timetable to plan.
- A – Attention – pay attention to detail. Only answer what is required.
- N – Never give up! Try, try and try again!
- C – Calm – stay calm even when the questions seem difficult.
- E – Early – sleep early the night before your exam. If you prepare well you will not need to cram the night before.

The more creative you are and the more you link your 'codes' to familiar things, the more helpful your mnemonics will be.

## Mind maps

Mind maps work because they show information that we have to learn in the same way that our brains 'see' information. As you study, add pictures to each of the branches to help you remember the content. Make your own mind maps as you finish each section.



How to make your own mind maps:

- Turn your paper sideways so your brain has space to spread out in all directions.
- Decide on a name for your mind map that summarises the information you are going to put on it.
- Write the name in the middle and draw a circle, bubble or picture around it.
- Write only key words on your branches, not whole sentences. Keep it short and simple.
- Each branch should show a different idea. Use a different colour for each idea. Connect the information that belongs together. This will help build your understanding of the learning areas.
- Have fun adding pictures wherever you can. It does not matter if you cannot draw well.

## ON THE DAY OF THE EXAM

This section is provided by the Department of Basic Education.

- Make sure you have all the necessary stationery for your exam, i.e. pens, pencils, eraser and calculator (with new batteries).
- Go to the bathroom before entering the exam room. You do not want to waste valuable time going during the exam.
- Use the ten minutes reading time to read the instructions carefully. This helps to 'open' the information in your brain. All questions are compulsory, unless indicated otherwise, but you do not have to answer them in order. Start with the question you think is the easiest to get the flow going.
- Break the questions down to make sure you understand what is being asked. If you do not answer the question properly, you will not get any marks for it. Look for the key words in the question to know how to answer it.
- Try all the questions. As each question has some easy marks in, make sure that you do all the questions in the exam.

- Don't panic, even if the question seems difficult at first. It will be linked to something you have covered. Find the connection.
- Manage your time properly. Do not waste time on questions you are unsure of. Move on and come back if time allows.
- Check weighting – how many marks have been allocated for your answer? Do not give more or less information than is required.
- Write big, bold and clearly. You will get more marks if the marker can read your answer clearly.

## STRUGGLING LEARNERS

You can support struggling learners by doing the following.

### SCAFFOLD LEARNING TASKS OR ACTIVITIES

Scaffolding means that you break learning up into chunks and provide a tool or concrete structure for each. This can reduce the cognitive load of the instruction and support the struggling learner.

One of the first things you can do is to choose different activities for different groups of learners. For example, you can take a complex task and divide it into smaller subtasks. Together, these subtasks must achieve the same goal as the big task. After doing this, grade the activities or tasks, with the big task having the highest grading, and all the smaller tasks together having the same grading as the big task.

Have learners then choose whether they want to do the group of smaller activities or tasks or the one big activity or task. Advise struggling learners to do the smaller ones first and then challenge them to try the big one when they feel ready.

Getting the smaller activities or subtasks right could help the learners to feel competent. It allows them to always feel like they are working at a level of challenge that is hard but right for them and that they can accomplish. This will allow them to make much greater progress through learning environments.

Other ways to scaffold learning is to:

- Show and tell. Learners learn best by seeing rather than hearing about something.
- Tap into prior knowledge. You can do this by asking the learners to share their own experiences or ideas about something.
- Give them time to talk about what they learnt in a structured and controlled way.
- Teach them the vocabulary (subject jargon) before you teach them the content. You can do that by introducing the words with photos or in context of things they know and are interested in. You can also use analogies and metaphors to explain the words to them.
- Use visual aids like pictures, graphs, charts and diagrams or graphic organisers such as mind maps, concept maps or story maps.
- Check for understanding by discussing the content, pausing for a moment to let it sink in, and then asking a well thought out question.

### BUILD IN AUTONOMY (CHOICE)

- See the principles of gameful learning below.
- Let the learner choose which activities are most relevant, challenging and interesting to them.

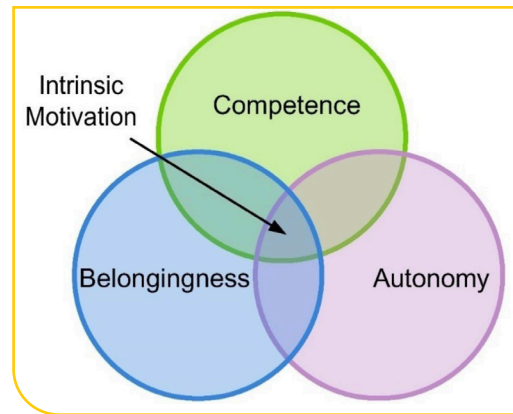
Here are the principles of gameful learning:

- Autonomy is critical, and this is the first of three principles that come from gameful learning.
- The next principle is a sense of belonging, and a really good game environment makes you feel like you are a part of something.
- The third principle is to support feelings of competence.

## APPLY GAMEFUL LEARNING

Motivation plays an important role in learning and to be self-motivated, learners must:

- be able to make meaningful choices over what they are doing (autonomy)
- be challenged by a task, but still feel that they can succeed (competence)
- feel connected to those surrounding them (belongingness).



Supporting these feelings could eventually lead to self-determination and learners becoming self-directed.

Other research-based strategies for motivating learners include:

- becoming a role model for learner interest;
- getting to know learners;
- using examples freely;
- using a variety of learner-active teaching activities;
- setting realistic performance goals;
- placing appropriate positive emphasis on testing and grading;
- being free with praise and constructive criticism; and
- giving learners as much control over their own learning as possible (Bain, 2004; Nilson, 2003; DeLong & Winter, 2002). This element is also important when thinking about authenticity. If learners can learn ideas that are connected to their lives and produce representations of their knowledge in ways that matter, they are more motivated.

Gameful learning also relates to personalised learning that supports the notion that children learn best when their individual differences are taken into consideration. Personalised learning is based on the following three principles (Microsoft, 2014):

- It provides multiple means of representation.
- It provides multiple means of action and expression.
- It provides multiple means of engagement.

Another important principle of gameful learning is the freedom to fail (as seen with videogames): you can experiment, take risks and try things you have never done before, fail miserably...and do it again and again until, after much practice, you get it right. Unfortunately, this will not work in all classrooms as it requires a significant amount of grading to manage, and it can hinder the ability to keep a cohort on a specific content progression. But when you can structure learning opportunities in this way, learners' motivation to engage increases, and their learning outcomes improve.

## LEARNER EXPERIENCE

Learners:

- respect and value teachers that are positive, enthusiastic about the subject, supportive and have access to a wide range of teaching aids;
- enjoy engaging, interactive and communicative teaching methods;
- value choice and classes that encourage independent learning and learner autonomy.
- want to understand what they are expected to learn – what they are learning, why they are learning it and what quality work looks like.
- enjoy things that interest them.



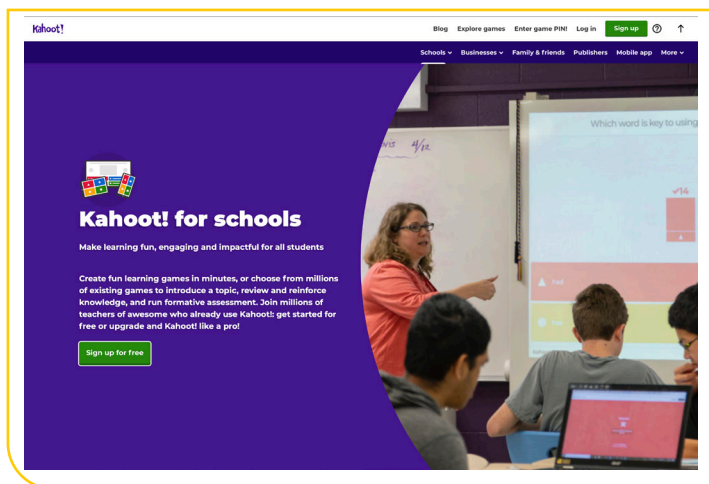
## GENERAL TIPS, LINKS AND IDEAS

This section gives you various tips, ideas and links to interesting and/or informative websites.

### KAHOOT!

Kahoot! is a free eLearning tool that can be used to create fun learning games, quizzes, surveys or discussion questions, called a Kahoot, in minutes. This can be used to teach, reinforce, assess or share information with learners.

Link: <https://kahoot.com/>



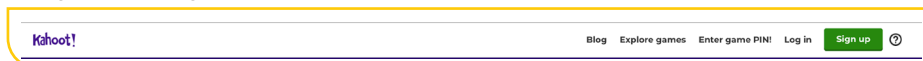
You can use Kahoot! in your classroom for the following reasons:

- As a class starter or ice breaker.
- To help learners with keywords, terminology or definitions.
- To assess learners' understanding of a subject before or after they learnt about it.
- To zero in on the needs of individual learners by getting a detailed report of which questions they missed.
- To direct classroom activity by organising small groups.
- To review for a test or exam.
- To end a class with Kahoot notes, a quick quiz or formative assessment.
- By encouraging learners to create their own kahoots, the content is reinforced.
- To help learners learn information in a sequential order.

### HOW TO USE KAHOOT!

It is easy to use Kahoot!

- To get started, go to the <https://kahoot.com/> website and create a free account.



- Use a public kahoots or create your own.



By watching the following video, you can learn how to use Kahoot!

Link: <https://www.youtube.com/watch?v=de7G0WioH8E>

## GOOGLE QUIZ

The Google Quiz is an online assessment tool that will self-mark learners' attempts and give feedback to teachers and learners.

The quiz can be done on desktop or mobile computers and learners need to have access to the Internet. Teachers will provide learners with the link to the quiz (as a URL or QR code).

The platform allows for:

- Learners getting instant feedback to the answers.
- Teachers getting a full report on the performance of the learner.

Link: [forms.google.com](https://forms.google.com)

To learn more on how to use google forms to create quizzes, watch the following video.

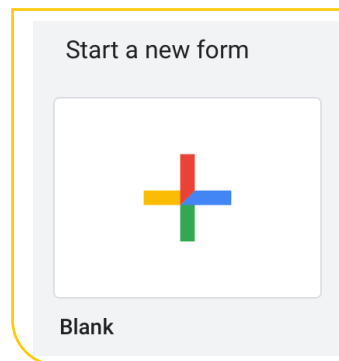
Link: <https://www.youtube.com/watch?v=Pdt8Vv7-3Xk>

For a more detailed explanation, you can use the following link.

Link: <https://www.youtube.com/watch?v=ayvhVM2BMv0>

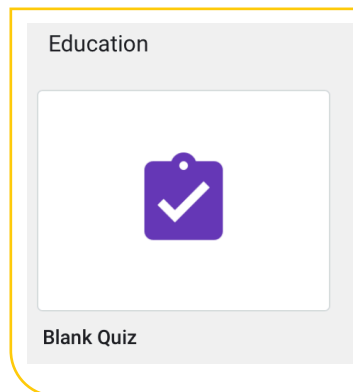
To create a new quiz:

1. Go to [forms.google.com](https://forms.google.com).
2. Click on **Blank** to open a new form.



To create a new quiz from Google Drive:

1. Click **New**, hover over More and click on the **Google Forms** arrow.
2. Click on **From a template**.
3. Scroll to the bottom and click **Blank Quiz**.



To follow a step-by-step tutorial on how to create a quiz, go to the G Suite Learning Centre.

Link: <https://gsuite.google.com/learning-center/products/forms/quizzes-get-started/#/>

You can also read the information on Teachers.Tech

Link: <http://teachers.tech/self-grading-quizzes-google-forms-google-classroom/>

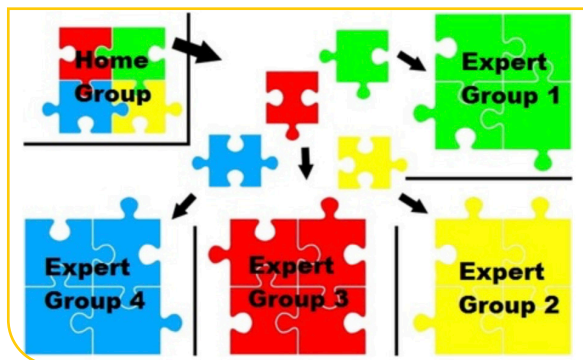
## PUZZLEMAKER

You can use the following link to create crossword puzzles step-by-step.

Link: <http://puzzlemaker.discoveryeducation.com/CrissCrossSetupForm.asp>

## JIGSAW ASSESSMENT TECHNIQUE

The cooperative learning strategy known as the jigsaw technique helps learners create their own learning.



To facilitate this, teachers arrange learners in groups. Each group is assigned to research a different topic. Group members then join with members of other groups and share the research about the information.


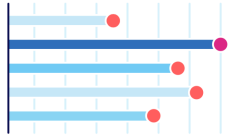

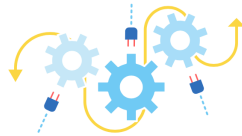

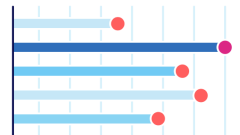

Afterwards, learners must complete a post-assessment questionnaire.

## GRADECRAFT

Gameful learning is an educational tool based on the principles that work so well in games, applied to the learning environment. It is about taking elements from games and applying them to non-game settings.

To learn more about the principles upon which gameful learning is based, you can go to the following website: Gameful pedagogy – <http://www.gamefulpedagogy.com/>

Following are some of the tools you can use from Gradecraft.

 <p><b>Badges</b> Badges can be used to recognize student achievement on a specific assignment or their excellence more broadly in your course. Badges are flexible: you decide how they're awarded, and how they relate to student progress.</p>	 <p><b>Leaderboards</b> Students can choose to participate in anonymous, team-based leaderboards if they enjoy competition, or opt-out if they don't. As the instructor, you control if leaderboards appear at all.</p>	 <p><b>Unlocks &amp; Gating</b> Games don't start with a final boss battle—the same is true for learning: we want learners to acquire foundational knowledge before they move on to more complex work. With unlocks, you can determine what work must be done before students unlock additional opportunities.</p>	 <p><b>Integration with Existing Platforms</b> We know that integrating with other platforms is key, so we support <a href="#">Learning Tools Interoperability (LTI) 1.1</a> as both a Tool Provider and Consumer. Your data is your data—and should always be available to you to download and dia into.</p>
 <p><b>Badges</b> Badges can be used to recognize student achievement on a specific assignment or their excellence more broadly in your course. Badges are flexible: you decide how they're awarded, and how they relate to student progress.</p>	 <p><b>Leaderboards</b> Students can choose to participate in anonymous, team-based leaderboards if they enjoy competition, or opt-out if they don't. As the instructor, you control if leaderboards appear at all.</p>	 <p><b>Unlocks &amp; Gating</b> Games don't start with a final boss battle—the same is true for learning: we want learners to acquire foundational knowledge before they move on to more complex work. With unlocks, you can determine what work must be done before students unlock additional opportunities.</p>	 <p><b>Integration with Existing Platforms</b> We know that integrating with other platforms is key, so we support <a href="#">Learning Tools Interoperability (LTI) 1.1</a> as both a Tool Provider and Consumer. Your data is your data—and should always be available to you to download and dia into.</p>

Link: <https://www.gradecraft.com/>

To sign up with Gradecraft, click on the pink button.

**Ready to Get Started with GradeCraft?**

Are you an instructor who believes learning should be gameful?  
Do you want to get started with your gameful course design?

[Sign up now!](#)

Although it is not a free tool, you can try it out on a free trial basis.

**PUBLIC ACCESS**

We're proud to offer GradeCraft to instructors anywhere in the world! We have **free trial accounts** available for any instructor wishing to try out GradeCraft. You'll be able to fully set up a course, explore our features, and try out how things work—the only thing you can't do is add students using the LTI connection.

[Sign up for a free trial](#)

You may also purchase a license (or upgrade your free trial at any time) if you find GradeCraft is right for you and your students.

[Learn more about licensing options](#)

Go to the following YouTube video to listen to an interesting presentation on gameful learning:

Link: [https://www.youtube.com/watch?time\\_continue=391&v=k\)NaJpQbwA0](https://www.youtube.com/watch?time_continue=391&v=k)NaJpQbwA0)

## GENERAL TIPS

The following are just some general tips that you may want to apply:

- Ensure that you have additional examples other than what the textbook provides to illustrate concepts.
- Encourage learners to compare the world they know today with 30+ years ago - communication, work, family etc. If they explain something clearly with examples, they can often get good marks - e.g. communication using ICTs is much faster than sending a letter by post.
- Teach them the vocabulary (subject jargon) before you teach them the content.
- Read and follow tech blogs (teacher and learner) to stay up to speed with new developments, etc.
- Read and follow <http://www.techteachers.co.za/>
- Read <http://www.techteachers.co.za/category/successful-teacher/> to see what makes a good teacher.
- Become part of the C.A.T and I.T. Teachers group on Facebook <https://www.facebook.com/groups/cat.it.teachers>

## ADDITIONAL RESOURCE SITES

The following links refer to sites that you can use for additional information on CAT.

- <http://www.techteachers.co.za/>
- [www.gcflearnfree.org/subjects/technology](http://www.gcflearnfree.org/subjects/technology)
- [www.bbc.com/education/subjects/zqmtsbk](http://www.bbc.com/education/subjects/zqmtsbk)
- [www.bbc.com/education/subjects/z34k7ty](http://www.bbc.com/education/subjects/z34k7ty)
- [www.lifewire.com/](http://www.lifewire.com/)
- [thenextweb.com/](http://thenextweb.com/)
- [toplink.weforum.org/knowledge/explore#](http://toplink.weforum.org/knowledge/explore#) (free registration)
- [support.office.com/en-us/office-training-center](http://support.office.com/en-us/office-training-center)
- [www.gcflearnfree.org/subjects/office/](http://www.gcflearnfree.org/subjects/office/)

## ADDITIONAL ACTIVITIES AND EXAM PAPERS

Various additional activities are provided on the following links or on the DVD at the back of this guide.

- <http://www.techteachers.co.za/practical-revision-activities-grades/>
- <http://www.ecexams.co.za>

## HOW THE TEXTBOOK WORKS

The guided activities are the main teaching element in the practical textbook. These activities are a step-by-step procedure of how to do a specific task and should be done in class with the learners. After making sure that the learners know what to do, there are also activities that can be either done at school or at home.

In some guided activities, especially in Chapter 2, learners have to save their work at the end of an activity with a different file name and then use the renamed file in the next guided activity.

Screenshots used in the textbook have been created with different versions of Microsoft Office. In Office 2016 the active tab is shown with a white background whereas in Office 365 the active tab is underlined in blue.

## DATA FILES

All data files for the practical activities are provided on a separate disk with this Teacher's Guide.

PART A

# THEORETICAL CONTENT



# GENERAL CONCEPTS OF COMPUTING

## CHAPTER OVERVIEW

Unit 1.1	Information processing cycle: input, output, processing, storage and communication
Unit 1.2	Computer features and classification
Unit 1.3	The role of ICTs in the workplace
Unit 1.4	The value of CAT

The following learning outcomes are covered by this chapter: 

- Describe the information processing cycle
- Discuss different types of computers and their typical features
- Categorise computers
- Elaborate on the role of ICT in the workplace
- Discuss the value of CAT as a subject

GRADE: 11

DATE:

TEACHING TIME: 2.4 hours

Resources	Each learner should have access to: <ul style="list-style-type: none"> <li>• CAT 11 textbook</li> <li>• Workbook</li> <li>• QR reader</li> </ul>
Resources	These words, phrases and abbreviations appear in the text. <ul style="list-style-type: none"> <li>• <b>Supercomputers:</b> The fastest and most powerful computers available.</li> <li>• <b>Mainframes:</b> Powerful computers used by large corporations for critical tasks (such as data processing) and for cloud storage.</li> <li>• <b>Servers:</b> Computers that have powerful processors, large hard drives and large memory capacities. These are usually used for networking and storage.</li> <li>• <b>Workstations:</b> They have high-resolution screens, large memories and a lot of RAM (random-access memory). They are usually used for professional graphic design, video editing and RAM-intensive programs.</li> <li>• <b>Personal computers:</b> These computers are used by people for daily tasks such as creating reports or spreadsheets and programming.</li> <li>• <b>Embedded systems:</b> Include ATMs and point-of-sale systems.</li> </ul>

## INTRODUCTION

In Grade 10, learners learned about the basics of computers. They were shown that all computers use the same basic process to function, namely the input, processing, storage, output and communication process. This is called the information processing cycle.

This chapter will refresh their knowledge on the basics of how computers work, the different types of computers there are and their typical features. They will then learn about how computers are categorised and how ICT has made the workplace faster and more efficient.





## Activity 1.1

## Memorandum

Do the following activity on your own.

1. Usually Mpumi uses the computers in her school's computer lab to do her homework. Mpumi's parents recently decided to get her a computer so that she can do more of her work at home.
  - a. What kind of computer should Mpumi use? Give TWO reasons for your answer.

*Answer: Mpumi should use a personal computer because: (any two of the following possible answers)*

    - She will be using it for normal daily tasks.
    - She does not need a computer with large memory.
    - She does not need a computer with very high speed.
    - Her computer must be able to do basic tasks such as creating reports and opening documents.
  - b. List TWO types of input devices she would need.

*Answer: Some possible answers:*

    - Mouse.
    - Keyboard.
    - Microphone.
  - c. List TWO types of output devices she would need.

*Answer: Some possible answers:*

    - Monitor.
    - Printer.
    - Speaker.
  - d. List TWO types of storage devices she would need.

*Answer: Some possible answers:*

    - SSD
    - HDD/external HDD
    - USB flash drive
    - CD/DVD
  - e. Mpumi wants to save a word document on her computer as 'Geography.docx'. Explain the basic process of how she will create and save this file on her computer. NOTE: Consider what happens during each stage of the information processing cycle.

*Answer: Mpumi will:*

    - Use her mouse to click on the Microsoft Word icon, which will open Microsoft Word on her monitor screen.
    - As she uses her keyboard to type text in the Word document, the text will appear on her monitor screen.
    - The CPU will write the data she creates in the Word document to the computer's RAM (temporary storage).
    - When she is done, she clicks on 'Save As' to save the file as 'Geography.docx'.
    - The computer moves the data from RAM to the disk drive (HDD/USB flash drive - permanent storage).
    - She can choose to save the file in the default location or a specific location on the computer's storage drive.



## Activity 1.2

## Memorandum

1. Briefly describe what a dedicated device is.  
*Answer:* A dedicated device is a device with an embedded computer that is designed to perform very specific functions. It is usually limited in what it can and cannot do.
2. Give five examples of a dedicated device.  
*Answer:* Some possible examples:
  - Calculator
  - Smart fridge
  - ATM
  - Barcode scanner
  - Digital watch
3. Place the following devices in order of most portable to least portable.
  - A Mainframe
  - B Smartphone
  - C Laptop computer
  - D Desktop computer*Answer: B, C, D, A*
4. Place the following devices in order of most processing power to least processing power.
  - A Mainframe
  - B Smartphone
  - C Laptop computer
  - D Desktop computer
  - E Server*Answer: A, E, D, C, B*  
 Accept as correct if learners have C before D. A laptop can have greater processing power than a desktop.
5. Determine which of following computing devices are used in the following examples:
  - Desktop PC
  - Laptop
  - Tablet
  - Smartphone
  - Server

	EXAMPLE	TYPE OF COMPUTING DEVICE (ANSWER)
1.	David is working for a bank and needs to store petabytes of their data on a computer system.	Server
2.	Maseko wants to create a small graphics design company and needs 10 computers suited for this purpose.	Desktop PC
3.	Mary-Anne travels for business a lot. During these business trips she needs a device that she can use to create and edit documents.	Laptop
4.	Darwin has a food blog where he posts pictures of different locations he has eaten at. So, he needs to be able to take photos whenever he eats somewhere new.	Smartphone
5.	Carmen is very artistic and wants a computer she can easily draw sketches on whenever she explores the countryside and beach.	Tablet



	EXAMPLE	TYPE OF COMPUTING DEVICE (ANSWER)
6.	Emmanuel wants a simple and affordable computer he and his family can use at home.	<i>Desktop PC</i>
7.	Akshara is a college learner who needs a computer she can practice programming on in-between lectures.	<i>Laptop</i>
8.	Bongi needs a device she can use to socialise with her friends on Facebook, Twitter and WhatsApp.	<i>Smartphone</i>
9.	Minke has decided to launch a website so that she can sell her designer clothing online. This requires a computer that can store and manage information on her products, clients, orders, etc.	<i>Server</i>
10.	Oliver is a game developer that works from home and needs a very powerful computer that he can easily upgrade over time.	<i>Desktop PC</i>



## Activity 1.3

## Memorandum

Do the following activity on your own.

1. As technology is always changing and improving people are finding more ways to use technology to make certain processes in the workplace more efficient.
  - a. What are ICTs and why are they used in the workplace?  
*Answer: ICTs are Information and Communications Technologies. The main reason ICTs are used in the workplace is that they allow humans to do their work faster, more efficiently and with fewer wasted resources.*
  - b. In the workplace, how are ICTs used to improve the way employees are paid?  
*Answer: Use the following as an assessment guideline:*  
 Some possible explanations:
    - Employees do not need to be paid with physical cash, they can be paid using online banking.
    - Paying through online banking makes the payment process easier and quicker and can be done by anyone who has the relevant details.
    - With online banking employees will be instantly notified as soon as the payment goes through, rather than constantly going to the physical bank or employer to check if they have been paid.
  - c. In the workplace, how are ICTs used to improve the way employees communicate with each other? Also mention TWO software programs that employees can communicate with.  
*Answer: Use the following as an assessment guideline:*  
 Some possible explanations:
    - Employees can communicate from anywhere around the world, since they do not need to all be in one centralised location.
    - Employers and employees are able to keep in touch using the internet and various software programs, which allows for instant communication.
    - Employees do not need to use out-dated to time consuming methods of communication like letter posting services.
    - Employees and employers can use (any two of the following software program examples):
      - Skype
      - Gmail
      - WhatsApp
      - Video conferencing
      - Slack
2. Give TWO examples of how ICTs can be used to improve a school environment.  
*Answer: Learner's own answer.*  
*Use the following example as an assessment guideline:*
  - Teachers can email the learners' report cards directly to their parents.
  - The school can email sick learner's their homework.
  - Learners who are sick at home can use Skype to listen in on school lectures, so that they do not miss out on any schoolwork.
  - ELearning tools such as Google Classroom, Moodle, etc.
3. Name TWO jobs, that currently exist, that you think will be replaced by ICTs in the future. Give a reason for each of your answers.  
*Answer: Learner's own answer.*  
*Use the following example as an assessment guideline:*
  - Bank tellers will be replaced by ICTs because people do most of their banking online.
  - Taxi drivers will be replaced by self-driving cars because they are safer and there is less risk of being attacked by the taxi driver or being deceived by a stranger claiming to a taxi driver.



## Activity 1.4

## Memorandum

Do the following activity on your own.

1. Bernes is a school learner and he dreams of becoming a doctor when grows up. Bernes has decided that he does not need to take CAT because it is not relevant to his dream job.
  - a. What job would you like to do in the future? Mention THREE ways CAT can prepare you for this job.
 

*Answer: Learner's own answer.*

    - Use the following example as an assessment guideline:
    - A teacher can benefit from CAT in the following ways:
      - Can use CAT to create and print class tests on a computer.
      - Can use CAT to create presentations that can be used to teach learners.
      - Can use CAT to do more research on topics before teaching them to learners.
  - b. Name THREE ways CAT could improve Bernes' study life as a university medical learner.
 

*Answer: Use the following example as an assessment guideline:*

CAT can help Bernes to:

    - Easily navigate the university's website so that he can get access to resources and information he might need to complete his course.
    - Do research for any projects, theses, or homework he needs to do.
    - Understand how to troubleshoot any computer problems he may encounter.
  - c. Do you think that people in the medical field need to know how to work with computers? Give a reason for your answer.
 

*Answer: Use the following example as an assessment guideline:*

Yes. Because most hospitals are digitising their patients' records, meaning a doctor or nurse would need to know how to look up a patient's medical history on a computer.

X-rays are stored digitally and viewed on a computer screen.
  - d. While taking a tour of one of the best medical universities, Bernes discovers that a lot of the medical equipment makes use of computers.
    - i. What type of computers are used in medical equipment, like heart rate monitors?
 

*Answer: Embedded or dedicated computers.*
    - ii. Give TWO reasons why you think a lot of medical equipment makes use of computers.
 

*Answer: Use the following as an assessment guideline:*

Some possible explanations:

      - Computers are more accurate than doctors or nurses and are less likely to cause errors.
      - Computers can do things faster than doctors or nurses can.
      - Computers can be used to do multiple tasks at once.
      - Computers can be used to monitor a patient's condition 24 hours each day.
2. Do you know of a job that CANNOT benefit from CAT? If YES, mention it and give a reason for your answer. If NO, explain your answer.
 

*Answer: Learner's own answer.*

Use the following examples as an assessment guideline:

  - No. Because we live in the digital age and computers are everywhere.
  - Yes. Janitors do not need CAT to do their work because they do not use any equipment that requires computers or complex mechanics.

- 1.1** Which of the following is not part of the information processing cycle? (1)  
**A** Communication  
**B** Output  
**C** Storage  
**D** Memory  
*Answer: d*
- 1.2** Which of the following can be used for storage? (1)  
**A** CPU  
**B** HDD  
**C** GPU  
**D** AUP  
*Answer: b*
- 1.3** Which of the following computers is not portable? (1)  
**A** Laptop  
**B** Tablet  
**C** Smartphone  
**D** Server  
*Answer: d*
- 1.4** Which of the following computers can be used to process large amounts of data quickly? (1)  
**A** Mainframe  
**B** Workstation  
**C** Tablet  
**D** Notebook  
*Answer: a*
- 1.5** Which of the following is not a 'smart device'? (1)  
**A** ATM  
**B** Smart light bulb  
**C** Calculator  
**D** Xbox 360  
*Answer: c*
- 2. a.** Taking CAT at university level opens up many career possibilities. (1)  
*Answer: False. Taking CAT at school level opens up many career possibilities.*
- b.** New businesses can lower their administrative costs by using a centralised office. (1)  
*Answer: False. New businesses can lower their administrative costs by using a virtual office.*
- c.** Printed statements have been mostly replaced by electronic statements sent via email. (1)  
*Answer: True.*
- d.** CAT as a subject teaches us how to use computers so that we can become digitally savvy. (1)  
*Answer: True. ✓*
- e.** Networking is part of the communication stage. (1)  
*Answer: True. ✓*
- 3.** Choose a concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (10)

COLUMN A		COLUMN B	
1.	A device that connects a computer to other computers in a network.	A.	Laptop
2.	A device with medium processing power that use miniaturised parts.	B.	Smart fridge
3.	A device that stores large amounts of data and processes data at extremely high processing speeds.	C.	Smart light bulb
4.	A device that reduces the amount of energy that a household consumes.	D.	Smartphone
5.	An extremely portable device that mainly makes use of mobile technologies.	E.	ATM
		F.	CPU
		G.	Server
		H.	NIC

Answer:

3.1-H ✓; 3.2-E ✓; 3.3-D ✓; 3.4-C ✓; 3.5-D ✓

4.1 Briefly explain what happens during the following stages of the information processing cycle.

- a. Processing stage (2)
- b. Storage stage (2)

Answer:

- a. The CPU works with the computer's memory ✓ to get instructions on how to display the information from the input device ✓
- b. And stores it as pixels in the computer's memory. ✓ This information is sent to the output device ✓

4.2 Compare the functions of input and output devices. (4)

Answer: Input devices enter data into a computer. ✓ Then it takes the sent input data and converts it into binary code (0s and 1s). ✓

While output devices take pixels, information or data from the processing stage ✓ and displays or converts it to a format that can be used by the user. ✓

4.3 Name a device that can be used to electronically transfer money. (1)

Answer: ATM ✓

4.4 What is the relationship between CAT and ICTs? (2)

Answer: CAT skills teach people how to use ICTs better. ✓

4.5 Give the name of a non-portable device that is suitable for creating documents and web browsing. (1)

Answer: Desktop PC ✓

5. Adam and his family have decided to open a sweets shop called the Sweet Company. He knows how and where to get the supplies for his shop. But as his shop starts to grow, he decides to start a franchise and opens a second Sweet Company at a different location. In order to keep track of both shops he decides to start integrating ICTS and computers in his business.

- a. Name TWO computing devices Adam and his employees can use to better run and manage his shop. Give a reason for each of your answers. (4)

Answer: Use the following as an assessment guideline:

- Card swipe machines ✓ to allow customers to pay with credit and debit cards. ✓
- Desktop computers ✓ to give staff access the store's database and get information about the store's sweet inventory. ✓
- Barcode scanners ✓ to document and keep track of sweets that get delivered to the store and sold at the store. ✓

- b.** Mention THREE ways ICTs can improve the way Adam's sweet shop is run? (3)  
*Answer: Use the following as an assessment guideline:*
- Staff members (employees and employers) do not need to physically travel from one store to the other to get information from each other. ✓
  - Staff members can keep track of the sweet products/inventory stored at both stores. ✓
  - Staff members can use the internet to communicate with each other easier. ✓
  - ICTs can make it easier to pay employees. ✓
  - ICTS can make it easier to place orders for sweets products to be delivered. ✓
  - ICTS can be used to manage the stores' financial accounts easier. ✓
- c.** Mention TWO instances where CAT skills can be used to improve the running of Adam's sweet shops? (2)  
*Answer: Use the following as an assessment guideline:*
- CAT skills can help staff members understand how to navigate the store's online database easier. ✓
  - CAT skills can help staff members to document and check all the store's daily sales on the store's computers. ✓
  - CAT skills can help the staff to use technology like email to communicate with other staff members. ✓
  - CAT skills can help staff understand how to use ICTs better. ✓
- d.** Give TWO reasons why Adam should consider purchasing a UPS for both shops. (2)  
Note: A UPS is dealt with in Chapter 5. This question can be used as an opportunity reinforce research skills.  
*Answer: Use the following as an assessment guideline:*
- Frequency of load-shedding, power failures
  - Users may lose their unsaved work
  - Damage to equipment caused by electric spikes
- e.** Adam can now work on a flexi-time schedule. Explain what it means to work flexi time. (2)  
*Answer: Use the following as an assessment guideline:*
- Not fixed starting and ending time ✓
  - Can work outside of his set office hours. ✓
  - Can work the required hours as it suits him. ✓

TOTAL: [40]



# INPUT, OUTPUT AND OTHER DEVICES



## CHAPTER OVERVIEW

Unit 2.1	Input devices
Unit 2.2	Output devices
Unit 2.3	Devices, software and equipment



The following learning outcomes are covered by this chapter:

- Describe various types of input devices, including scanners, digital cameras and biometric input devices
- Discuss the advantages, disadvantages and limitations of various input devices
- Explain how the quality of scanners and digital cameras is measured
- Describe various types of output devices, including display devices and interactive whiteboards
- Discuss the advantages, disadvantages and limitations of various output devices
- Explain what criteria are used to measure the quality of display devices
- List and describe the software and equipment needed to operate input and output devices
- Discuss the purpose of OCR (optical character recognition) and hand-held OCR devices

GRADE: 11

DATE:

TEACHING TIME: 8 hours

Resources	Each learner should have access to: <ul style="list-style-type: none"> <li>• CAT 11 textbook</li> <li>• Workbook</li> <li>• QR reader</li> </ul>
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Resources	These words, phrases and abbreviations appear in the text. <ul style="list-style-type: none"> <li>• <b>Colour depth:</b> Also known as bit depth and refers to the number of bits used to indicate the colours of a single pixel.</li> <li>• <b>Resolution:</b> The amount of detail an image can hold and is measured in pixels per inch (ppi) or dots per inch (dpi).</li> </ul>
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## INTRODUCTION

In Grade 10, learners learned that hardware is the physical components of a computer. This include items such as the monitor (or screen), keyboard and mouse.

An input device is any device that allows you to enter data into a computer and interact with it. Common input devices include keyboards, computer mice, touchpads and touchscreens. They also learned about the basics of digital cameras, scanners and readers such as radiofrequency identification (RFID), magnetic strip and OCR readers. Other input devices are video and audio input devices such as webcams and microphones, and biometric input devices such as fingerprint scanners.

Output devices take the processed input from a computer and display it in a way that is easy for humans to understand. Screens are the main output devices of any computer. Liquid crystal displays (LCDs) and LED screens are the most popular types. Printers are another common type of output device. There are two main printer types, namely inkjet and laser printers.



## Activity 2.1

## Memorandum

1.
  - a. Which of the following does not determine a digital camera's quality?
    - A. Resolution
    - B. Focal length
    - C. Price
    - D. Lens aperture

*Answer: C*
  - b. Which of the following is not an example of biometric input devices?
    - A. Voice recognition
    - B. DNA tester
    - C. Fingerprint scanner
    - D. Facial recognition

*Answer: B*
  - c. Which device is used when you need to convert a physical copy of a document into a digital copy?
    - A. Digital camera
    - B. Scanner
    - C. Smartphone
    - D. Laser keyboard

*Answer: D*

2. Match column B with column A:

COLUMN A	ANSWER
2.1 The amount of detail that a camera can capture, measured in megapixels.	C Resolution
2.2 The devices used to interact with a computer	G Input devices
2.3 Another name for a wireless keyboard.	B Bluetooth keyboard
2.4 Devices that link to video-calling applications using the internet	F Webcams
2.5 Used in the retail and restaurant industries to track stock and orders.	H Point-of-sale terminals
2.6 The primary input devices for smartphones and tablets.	E Touchscreens
2.7 The maximum amount a camera lens can open	D Lens aperture
2.8 The measurement for scanner resolution	A Pixels per inch

3. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
  - a. It is good practice to regularly back up your files.  
*Answer: True*
  - b. A POS system does not need to be maintained after installation.  
*Answer: False, A POS system does need to be maintained after installation.*
  - c. Touchscreens can be used for biometric scanning.  
*Answer: True*
  - d. Resolution is the amount of colour an image can show.  
*Answer: False, Resolution is the amount of detail an image can show.*
  - e. Dynamic range measures the range of light a scanner can read.  
*Answer: True*
4. Answer the following questions in your own words:
  - a. What factor determines how much a camera can zoom?  
*Answer: focal length*
  - b. Give three advantages and disadvantages of scanners as input devices.

*Answer: Any three of the following advantages:*

*Produce accurate and high-resolution images.*

*Scanned images can be added to electronic documents or edited easily.*

*Accurately capture the details of a document.*

*Keep a record of original documents.*

*Can be a preservation tool.*

*Any three of the following disadvantages:*

*Scanned images can lose clarity and quality.*

*Image files can be very large and take up space.*

*The quality of the original affects the quality of the scanned image.*

*Scanners can be expensive and slow.*

*Scanners are not very portable.*

- c.** Briefly describe the factors that determine a scanner's quality.

*Answer: A scanner's quality is determined by Colour depth, Resolution and Dynamic range.*

- d.** Why would a Nikon Coolpix B500 or a Canon 4000D camera not be considered an input device?

*Answer: These devices are not linked directly to the computer and require additional hardware to transfer the image files from the device to a computer.*

- e.** Describe why digital cameras in smartphones become outdated very quickly.

*Answer: Digital cameras in smartphones can become out of date very quickly when new smartphones come on the market. This is because the technology in the new devices is usually better than the technology in older devices.*

- f.** Describe the factors that determine a camera's quality.

*Answer: Camera quality is determined by three factors, resolution, lens aperture and focal length.*

- g.** How would you use fingerprint scanners at a school?

*Answer: You would use a fingerprint scanner at a school to track which learners and teachers are at school on a specific day or to allow learners and staff to access the school. You can also use one to keep track of visitors to the school.*

- h.** Describe why a criminal might clone your fingerprints.

*Answer: A criminal might clone your fingerprints to unlock devices or to gain access to areas that your biometric data gives you access to.*

- i.** What are the advantages of POS systems and ATMs?

*Answer: POS terminals can keep accurate track of stock and can provide reports on sales and stock movement.*

*ATMs make basic banking faster and easier. These features are available 24/7.*

- j.** Why are touchscreens becoming more common?

*Answer: Since touchscreens are the primary input devices for smartphones and tablets, and smartphones and tablets are becoming more common and more popular.*

- k.** Give two types of wireless input devices.

*Answer: Wireless keyboards and wireless computer mouses.*

- l.** Give one disadvantage of laser keyboards.

*Answer, any one of the following:*

*If the touchscreen is damaged, it can be hard to work with the virtual keyboard.*

*Laser keyboards are a fairly new technology.*

*Laser keyboards can only be used in dim light and are not very accurate.*



## Activity 2.2

## Memorandum

1.
  - a. Which of the following cannot be a wireless output device?
    - A. Monitors
    - B. Printers
    - C. Headphones
    - D. Speakers

*Answer: A*
  - b. Which of the following is NOT a wireless communication medium?
    - A. Wi-Fi
    - B. Bluetooth
    - C. NFC
    - D. RSS

*Answer: D*
  - c. Which of the following is the duty cycle of a home printer?
    - A. Around 500 pages
    - B. Around 5 000 pages
    - C. Around 10 000 pages
    - D. Around 1000 pages

*Answer: B*

2. Match column B with column A:

COLUMN A	ANSWER
2.1 An indication of a printer's 'resolution'.	D <i>dpi</i>
2.2 The basic shape of the screen based on the ratio of the width to the height measured in inches.	E <i>Aspect ratio</i>
2.3 A device that is both an input and output device.	A <i>Touchscreen</i>
2.4 A measure of the number of shades the display device can show between its blackest black and brightest white.	C <i>Contrast ratio</i>
2.5 You need to use special pens (that contain no ink) to write or draw on these devices.	B <i>Interactive whiteboards</i>

3. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
  - a. Most wireless audio devices, such as speakers and headphones, use Bluetooth to connect to the computer.
 

*Answer: True*
  - b. A printer's dpi can be shown in the same way a screen's resolution is.
 

*Answer: True*
  - c. Interactive whiteboards allow teachers to combine different visual learning styles into one.
 

*Answer: False, audio-visual learning*
  - d. Interactive whiteboards are the same as traditional whiteboards.
 

*Answer: False, not the same*
4. Answer the following questions in your own words:
  - a. What is the aspect ratio of a monitor that is 20 inches wide and 15 inches tall?
 

*Answer: 20:15 OR 4:3*

- b.** Name two extra features that determine the quality of a display device.

*Answer: Any two of the following:*

*resolution*

*contrast ratio/colour depth*

*response time/frequency*

- c.** What are the three key advantages of interactive whiteboards in the classroom?

*Answer:*

*Interactive whiteboards allow teachers to combine visual and auditory learning styles into one.*

*This allows learners to absorb information in multiple formats.*

*Because the notes made on the whiteboard can be saved and shared, learners do not need to take notes during a lesson. This allows them to focus more on participation during the lesson.*

*Interactive whiteboards allow learners to become part of the learning process by making them active participants in their lessons.*

- d.** Explain why every school in South Africa does not have interactive software.

*Answer: Interactive whiteboards, and the software that goes with them, can be very expensive.*

*It is also expensive to train teachers and learners in how to use these devices.*

- e.** Give two advantages of wireless printers.

*Answer: Wireless printers can be connected to multiple devices on the same wireless network, meaning that all the people in a specific area have access to the printer. Wireless printers can also connect to smartphones and tablets, so users can connect to them directly.*



## Activity 2.3

## Memorandum

1.
  - a. Which of the following is not a plug-and-play device?
    - A. Speakers
    - B. Keyboard
    - C. Motherboard
    - D. Headphones

*Answer: C*
  - b. Which of the following is not a connection method for a monitor?
    - A. HDMI
    - B. Bluetooth
    - C. VGA
    - D. Power cable

*Answer: B*

2. Match column B with column A:

COLUMN A	ANSWER
2.1. A software program designed to convert printed characters into digital text.	C OCR
2.2. The software that allows the hardware to work.	A Device driver
2.3. Devices that can be connected to a computer and used immediately.	E Plug-and-play
2.4. These devices will need power cables and display connections to work correctly	B Monitors
2.5. A type of connection for wired input and output devices	D USB

3. Answer the following questions in your own words:
  - a. Where can you get device drivers?
 

*Answer: Device drivers will usually be included on a disk that comes with the hardware or you can download them from the manufacturer's website.*
  - b. Explain how device drivers work.
 

*Answer: The driver helps the computer understand the information you give it through an input device or translate the information the computer sends to an output device so that it can display the information correctly.*
  - c. How can OCR be used to improve accessibility for physically challenged users?
 

*Answer: OCR scanners can work alongside text-to-speech devices to read printed text aloud.*

- 1.1** Which of the following is a disadvantage of biometrics? (1)
- A** It cannot be changed.
  - B** Its signal can be interrupted by Wi-Fi.
  - C** It is easy to use and requires little training.
  - D** It is difficult to lose.
- Answer: A*
- 1.2** Colour depth is \_\_\_\_\_. (1)
- A** The number of bits used to indicate the colours of a pixel.
  - B** The amount of detail an image can hold.
  - C** The range of light that can be read and used to produce a range of tones and colours.
  - D** The number of pixels used in a 1-inch square.
- Answer: A*
- 1.3** Which of the following does NOT use device drivers? (1)
- A** Mouse
  - B** Touchscreen
  - C** Internal hard drive
  - D** Printer
- Answer: B*
- 1.4** Which of the following is NOT usually a plug-and-play device? (1)
- A** Mouse
  - B** Speaker
  - C** Keyboard
  - D** Graphics card
- Answer: D*
- 1.5** The signals from wireless devices CANNOT be interrupted by \_\_\_\_\_. (1)
- A** Bluetooth
  - B** Radio waves
  - C** Microwaves
  - D** Fridges
- Answer: D*
- 2. a.** Taking CAT at university level opens up many career possibilities. (1)  
*Answer: False. Taking CAT at school level opens up many career possibilities.*
- b.** New businesses can lower their administrative costs by using a centralised office. (1)  
*Answer: False. New businesses can lower their administrative costs by using a virtual office.*
- c.** Printed statements have been mostly replaced by electronic statements sent via email. (1)  
*Answer: True.*
- d.** CAT as a subject teaches us how to use computers so that we can become digitally savvy. (1)  
*Answer: True.*
- e.** Networking is part of the communication stage. (1)  
*Answer: True.*
- 2.** Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** Voice recognition can be used to help people with hearing disabilities. (1)  
*Answer: False. Voice recognition can be used to help people with seeing (visual) disabilities. ✓*
- b.** Fingerprint scanners use biometrics to identify people. (1)  
*Answer: True. ✓*

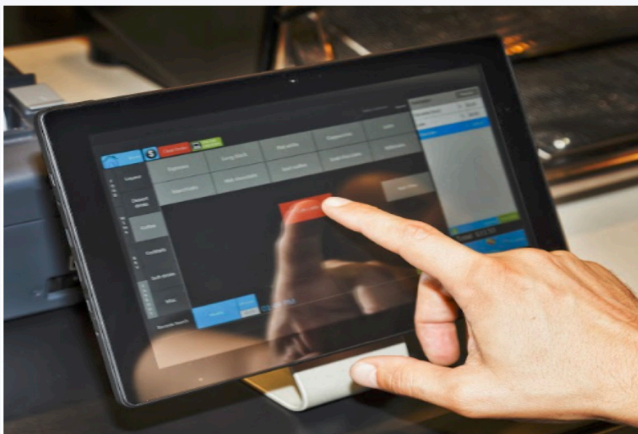


- c. Scanners use OCR to convert digital text to printed text. (1)  
*Answer: False. Scanners use OCR to convert printed text to digital text. ✓*
- d. Printed images can become corrupted so you will need to back them up regularly. (1)  
*Answer: False. Digital images can become corrupted so you will need to back them up regularly. ✓*
- e. A POS system is not an example of an output device. (1)  
*Answer: True. ✓*

3. Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (10)

COLUMN A	Answer
3.1. An input device that can only be used in dim light.	B Scanner
3.2. Devices that use the unique measurements and characteristics of your body to interact with a computing device.	I Biometrics
3.3. The ratio of a screen's width and height in inches.	A Aspect ratio
3.4. The refresh rate of the pixels on a screen.	E Frequency
3.5. A device that converts digital data to printed data.	H Printer

4.1 Look at the following image and answer the questions that follow.



- a. What type of input device does the image show? (1)  
*Answer: A touchscreen.*
- b. Name TWO other types of devices that make use this type of input device? (2)  
*Answer: Any two of the following:  
Handheld devices  
ATMS  
Terminals  
Interactive whiteboard*
- c. Mention ONE disadvantage of this device. (1)  
*Answer: Any one of the following:  
It is harder to type on a touchscreen than on a traditional keyboard. ✓  
Touchscreens can easily become dirty, smudged or cracked. ✓*
- d. Give TWO reasons why this input method is the most natural way of interacting with a computer. (2)  
*Answer: Use the following as an assessment guideline:  
We use our hands to interact with most everyday objects. ✓  
Unlike keyboards, mice, or biometrics, people do not need to be taught how to use touchscreen. ✓*

- 4.2** Provide TWO advantages of display devices? (2)  
*Answer: Any three of the following:*  
*The user gets immediate feedback about what is being processed. ✓*  
*The interaction between the user and the computer is easier. ✓*  
*Content can be displayed and changed quickly. ✓*  
*Displays can be customised to suit the user. ✓*
- 4.3** Mention TWO job professions that can benefit from using interactive whiteboards. Give an explanation for each of your answers. (4)  
*Answer: Use the following as an assessment guideline:*  
*Teachers ✓ : Because teachers can use it get the learners to absorb information in multiple formats ✓ or allow learners to share ideas on certain topics with the class. ✓*  
*Soccer players ✓ : Because coaches can use it to teach soccer players team strategies ✓ or allow soccer players to write down ideas and suggestions to improve their training. ✓*  
*Doctors ✓ : Because it can be used to help teams of doctors visually prepare for what each member must do during an operation. ✓*
- 5.** Thomas is a high school teacher who teaches a small class of 15 learners. Thomas decides that he wants to give his learners access to computers so that they can do a group project together. Three of Thomas's learners have disabilities which would make it hard for them to interact with a traditional computer. So, Thomas has to think of what types of extra input and output devices he will need to make this class project work.
- 5.1** Name two input devices that Thomas can use for a learner who cannot use their hands. (2)  
*Answer: Some possible examples:*  
*Audio recognition software ✓*  
*Eye-motion sensor technology ✓ or eye type ✓*  
*Foot operated mouse ✓*
- 5.2** List TWO output devices Thomas's learners can use for their class projects. Also mention what equipment Thomas would need to connect each of these devices to a computer. (4)  
*Answer: Use the following as an assessment guideline:*  
*Printer: ✓ That uses USB connector. ✓*  
*Scanner: ✓ That uses a USB connector. ✓*  
*Monitor: ✓ That uses a HDMI cable. ✓*  
*Projector: ✓ That uses a cable. ✓*
- 5.3** Explain ONE way of how disabled learners can benefit from OCR technology. Also mention what type of input and output device will be used. NOTE: Mention the benefit and the related disability. (4)  
*Answer: Use the following as an assessment guideline:*  
*Possible example: Blind learners ✓ can get printed school documents digitised with OCR so that they can be read out by the computer ✓. The documents will be input with a scanner (with OCR) ✓ and output with text-to-speech software ✓*
- 5.4** Thomas needs to order a printer. He wants to use it to print out pictures of his class and the best class projects.
- a.** What kind of printer should he order? (1)
- b.** What specifications should he look for to get good quality prints? (2)

TOTAL: [40]

# STORAGE, MEMORY AND PROCESSING DEVICES

## CHAPTER OVERVIEW

Unit 3.1 Storage devices

Unit 3.2 Processing devices

Unit 3.3 Basic troubleshooting

The following learning outcomes are covered by this chapter: 

- Describe the difference between primary and secondary storage
- Discuss online storage
- List the best storage media for backups and archiving
- Describe the role and function of various internal computing components, such as the motherboard, CPU, RAM and ROM
- Interpret advertisements for storage media and computers
- Do basic troubleshooting on input, output, storage and processing devices.

GRADE: 11

DATE:

TEACHING TIME: 2 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader

### Vocabulary

These words, phrases and abbreviations appear in the text.

- **GHz:** This is a unit of measurement for alternating current or electromagnetic wave frequencies equal to one billion hertz.
- **Motherboard:** It holds many of the components that allow a computer to function, such as the CPU, RAM and the connectors for input and output devices.
- **CPU (central processing unit):** Also called the processor and carries out the instructions of a computer program.
- **ALU (arithmetic logic unit):** Performs all the basic mathematical tasks (add, subtract, multiply and divide) and logical functions.
- **CU (control unit):** Manages the components by reading and interpreting instructions from memory and turning them into signals.
- **Cache:** The high-speed memory where instructions can be copied to and retrieved.

## INTRODUCTION

In this section, learners will learn more about the purpose of storage, what the difference is between primary and secondary storage, why computers need storage and what online storage is. They will be introduced to the storage devices that do the processing in a computer, such as the motherboard, random-access memory (RAM), read-only memory (ROM) and central processing unit (CPU) and what their functions are.

## WHAT ARE GIGABYTES, MEGABYTES AND TERABYTES?

These terms are used to describe the size of information in a computer, with a byte being the basic and physical unit of information.

However, to understand what it means, you should start with a BIT. This is the smallest increment of data in a computer and can only hold one of two values, 0 or 1. Because they are so small, they are seldom used to describe information as such and are clustered into a group of eight, called a BYTE.

The following diagram should help you understand and explain to the learners what each of these terms mean.

BIT	<ul style="list-style-type: none"> <li>• Smallest unit of data.</li> <li>• Single binary digit (0 or 1)</li> </ul>
BYTE	<ul style="list-style-type: none"> <li>• The basic and physical unit of information.</li> <li>• 1 byte = 8 bits = 1 character.</li> </ul>
KILOBYTE (KB)	<ul style="list-style-type: none"> <li>• 1 kilobyte = 1 000 bytes or 1 024 bytes (depending on binary or decimal value).</li> <li>• A typical short email or 1 paragraph of text takes up about 1 KB of space.</li> <li>• A low resolution photograph will take up about 100 KB.</li> </ul>
MEGABYTE (MB)	<ul style="list-style-type: none"> <li>• 1 megabyte = 1 000 kilobytes = about 1 million bytes.</li> <li>• An MP3 audio = about 1 MB per minute.</li> <li>• A high quality digital picture = about 2 to 5 MB.</li> </ul>
GIGABYTE (GB)	<ul style="list-style-type: none"> <li>• 1 gigabyte = 1 000 megabytes = about 1 billion bytes.</li> <li>• The capacity of RAM and flash drives is measured in GB.</li> <li>• An ordinary computer might have 4 GB of RAM.</li> <li>• A flash drive might hold 32 GB.</li> </ul>
TERABYTE (TB)	<ul style="list-style-type: none"> <li>• 1 terabyte = 1 000 gigabytes = about 1 trillion bytes.</li> <li>• The capacity of most desktop hard drives is measured in TB.</li> <li>• As of 2018, the new, averaged priced hard drives are in the 1 to 3 TB range.</li> <li>• 1 terabyte = 300 hours of good quality videos.</li> </ul>

## WHAT IS GIGAHERTZ?

Refer to the section on the CPU in the textbook.

When referring to a computer processor or CPU, gigahertz (GHz) is the measurement of the clock frequency or clock cycle of the CPU per second; it is the amount of time between two pulses of an oscillator. This determines the speed of the CPU.

Generally speaking, the higher number of pulses per second, the faster the computer processor will be able to process information, for example a 4 GHz processor performs 4 000 000 000 clock cycles per second.

The first computer's CPUs operated in kilohertz, for example the Intel 4004 operated at 740 kHz. Later processors operated in megahertz, such as the Intel Pentium, which could manage speeds up to 300 MHz. Today's computers operate in the gigahertz range such as 3,8 GHz or higher.

One gigahertz is equal to 1 000 000 000 hertz or 1 000 MHz.

**Activity 3.1****Memorandum**

1. a. Which of the following cannot be used to backup files?  
**A.** External HDD  
**B.** USB drive  
**C.** Optical disc  
**D.** RAM

*Answer: D*

- b. Which of the following is the most expensive storage?  
**A.** RAM  
**B.** HDD  
**C.** SSD  
**D.** iCloud

*Answer: C*

- c. Which of the following is secondary storage?  
**A.** RAM  
**B.** CPU  
**C.** HDD  
**D.** ROM

*Answer: C*

2. Match column B with column A:

COLUMN A	ANSWER
<b>2.1.</b> Most often the most expensive equipment in a PC, e.g. processor.	<i>C Primary storage</i>
<b>2.2.</b> A storage device that is relatively rugged and virtually shock proof as it does not have moving parts.	<i>F SSD</i>
<b>2.3.</b> A cheap storage device and backup device option.	<i>E USB</i>
<b>2.4.</b> The long-term storage of information that will be used in future.	<i>A Archiving</i>
<b>2.5.</b> The size of one TB in GB.	<i>B 1 000 GB</i>
<b>2.6.</b> Also called external, secondary or auxiliary memory.	<i>H Secondary storage</i>
<b>2.7.</b> Very common and relatively cheap storage device	<i>G HDD</i>
<b>2.8.</b> Amazon AWS and Google Drive, for example.	<i>D Online storage</i>

3. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a. Primary storage is accessed by the motherboard.  
*Answer: False, CPU*
- b. Magnetic tape has a very large storage capacity but can be destroyed easily and the data can be lost.  
*Answer: True*
- c. Online storage has limited space and you must pay to get more space.  
*Answer: True*
- d. The main purpose of primary storage is to store data for a long period of time.  
*Answer: False, short*
- e. Archiving is the short-term storage of information.  
*Answer: False, long*
4. Answer the following:
- a. What is the main purpose of primary storage?  
*Answer: Primary storage is where the main instructions for the computer's operations are stored.*
- b. Briefly describe the difference between primary and secondary storage.

*Answer: Primary storage stores data only for the short-term and the data will be deleted when the power is turned off. Secondary storage stores data for the long-term and will keep a copy of that data even if the device has no power going to it.*

- c.** What is the difference between backing up and archiving data?

*Answer: Backups are kept for a relatively short period of time. Archiving, on the other hand, is the long-term storage of information that will be used in future.*

- d.** What storage devices would you recommend to someone who needs to store data on a server and someone who wants to store copies of their digital photographs? Motivate your answer.

*Answer: For a server, the learner can recommend either SSDs or HDDs. For images, learners can recommend USB drives, online storage or HDDs. Motivations may include that SSDs and HDDs have larger storage capacities and are more rugged. USBs and HDDs are inexpensive and easy to use. They are better suited to shorter-term storage.*



## Activity 3.2

## Memorandum

1.
  - a. The start-up process is stored on which hardware component?
    - A. BIOS
    - B. RAM
    - C. ROM
    - D. CPU

*Answer: C*
  - b. The speed of a CPU is measured in?
    - A. GHz
    - B. MHz
    - C. Hz
    - D. Calculations per second

*Answer: A*
  - c. The various components of a motherboard are connected by which metal?
    - A. Sulphur
    - B. Copper
    - C. Silica
    - D. Silver

*Answer: B*

2. Match column B with column A:

COLUMN A	ANSWER
2.1. This unit performs all the basic mathematical tasks and logical functions of the CPU.	C ALU
2.2. Memory that is lost when the device shuts down.	B Volatile memory
2.3. The high-speed memory where instructions can be copied to and retrieved for the CPU.	E Cache
2.4. This part of the CPU manages the components by reading and interpreting instructions from memory and turns them into signals.	A Control unit
2.5. The most essential part of the computer.	F Motherboard
2.6. This unit carries out the instructions of a computer program	D CPU
2.7. This unit allows data to be accessed in random order.	H RAM
2.8. Data on this unit is often difficult to change.	G ROM

3. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
  - a. The motherboard distributes power to the computer.  
*Answer: True*
  - b. The RAM is stored on the BIOS chip.  
*Answer: False, ROM*
  - c. The motherboard is the brain of the computing operation.  
*Answer: False, CPU*
  - d. Temporary files are stored on the CPU.  
*Answer: False, RAM*
  - e. Data stored on the RAM is permanent.  
*Answer: False, temporary*
4. Answer the following:
  - a. Briefly describe the role and function of the motherboard and CPU.



*Answer: The role of the motherboard is to provide a place for other devices or interfaces to be installed (such as more memory or another graphics card), provide and distribute power to the various components, act as a communication hub as the components send and receive information through the motherboard and start the computer as it houses the BIOS (basic input/output system) chip where the ROM is stored.*

*The CPU carries out the instructions of a computer program. It is, basically, the 'brain' of the computer and does the arithmetical, logical and input/output operations of a computer program. When a function, program or piece of data is called, the CPU fetches the information for that instruction from the RAM or other hardware (such as the hard drive) to process it. The CPU takes these instructions and translates them into binary code so that the other components of the system can understand what needs to be done.*

**b.** Explain RAM.

*Answer: RAM is also called random-access memory and is a specific type of data storage. It allows data to be accessed in random order, which means specific information can be found quickly. RAM reads files faster than the hard drive; the CPU will store temporary copies of hard-drive files on it for quick access. RAM is also temporary storage for data that programs are using, which does not need to be stored permanently, allowing the programs to work faster.*

**c.** Describe ROM.

*Answer: The ROM, or read-only memory, stores the basic instructions for what needs to happen when the computer is switched on. It contains the basic code to get the computer started. The ROM is normally stored on the BIOS chip in the motherboard. The information stored in the ROM is often difficult to change and the data is not lost when the computer is powered down.*

**d.** Which questions should you ask yourself when looking at an advertisement for a computer?

*Answer:*

*How fast is the CPU in the computer?*

*How big is the memory?*

*How much storage capacity does it have?*

*Which operating system does the computer use?*



## Activity 3.3

## Memorandum

1. Match column B with column A:

COLUMN A	ANSWER
1.1. Preparing a disk to store data	B Formatting
1.2. When the files on a disk are divided into pieces scattered around the disk.	C Disk fragmentation
1.3. The process of locating segments or fragments of data stored on a hard drive and rearranging and restoring them into fewer fragments or into the whole file.	D Disk defragmentation
1.4. A file system for a USB drive	A NTFS
1.5. Window key + E is a shortcut to open.	F Windows Explorer
1.6. A program that deletes temporary files	E Disk clean up
1.7. The window where you find the Tools tab when doing a disk scan.	H Properties
1.8. A resource you can use to find troubleshooting tips for output devices.	G The manufacturer's website

2. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.).

- a. Microsoft Windows 10 needs disk scanning software.  
*Answer: False, has*
- b. Formatting your device deletes program files.  
*Answer: False, data*
- c. You must make sure Num lock is on if your Page Up/Page Down keys are not working.  
*Answer: False, Scroll lock*

3. Answer the following questions in your own words:

- a. Describe how you would format a disk.  
*Answer:*  
*Click on the SEARCH icon on the bottom left corner of your screen.*  
*Type in CONTROL PANEL. Click on CONTROL PANEL.*  
*Click on ADMINISTRATIVE TOOLS.*  
*Click on COMPUTER MANAGEMENT.*  
*Click on DISK MANAGEMENT.*  
*Right-click on the disk you want to format and click on FORMAT.*  
*Choose NTFS (new technology file system) as the file system and select DEFAULT as the ALLOCATION UNIT SIZE.*  
*Click OK to format the drive.*
- b. What is the purpose of a disk scan?  
*Answer: Disk scans can help detect and fix errors in USB flash drives, hard drives and SSDs (solid-state drives).*
- c. Explain how you would manually defragment your disks.  
*Answer:*  
*Click on the SEARCH icon on the bottom left corner of your screen.*  
*Enter DEFRAG and then select DEFRAGMENT AND OPTIMISE DRIVES.*  
*Click on the disk drive you want to optimise.*  
*Click on the OPTIMISE button.*

d. What does the Windows 10 disk clean-up tool do?

*Answer: Windows 10 has a built-in disk clean up tool that will delete the following:*

*Temporary files from the internet.*

*Deleted files and folders in the recycle bin.*

*Temporary files created by the operating system.*

*The component of the operating system you are not using.*

*Applications or programs that you do not use.*

- 1.1** Which of the following is an example of primary storage? (1)
- A. Motherboard
  - B. ROM
  - C. CPU
  - D. USB
- Answer: B*
- 1.2** Which of the following types of storage is volatile? (1)
- A. ROM
  - B. Internal HDD
  - C. RAM
  - D. Internal SSD
- Answer: C*
- 1.3** Which of the following is involved in the start-up of a computer? (1)
- A. CPU, ROM
  - B. RAM, ROM
  - C. RAM, CPU
  - D. HDD, ROM
- Answer: A*
- 1.4** When you look at a computer advertisement, what are the most important things to look at? (1)
- A. Storage, operating system, brand
  - B. Memory, processing speed, external hardware
  - C. Software, operating system, memory
  - D. Processing speed, storage, memory
- Answer: D*
- 1.5** Formatting means \_\_\_\_\_ a disk to store data. (1)
- A. Priming
  - B. Preparing
  - C. Saving
  - D. Processing
- Answer: B*
- 2.** Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a. Data that is being processed is stored in memory. (1)  
*Answer: False. Data that is being output is stored in memory. ✓*
  - b. The more cores a CPU has the slower it operates. (1)  
*Answer: False. The more cores a CPU has the faster it operates. ✓*
  - c. RAM is related to storage, while the CPU is related to speed. (1)  
*Answer: False. RAM is related to memory, while the CPU is related to speed. ✓*
  - d. Before you format a SD card you must erase the information on it. (1)  
*Answer: False. Before you format a SD card you must backup the information on it. ✓*
- 3.** Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (10)

COLUMN A	ANSWER
3.1. High-speed memory that can be used to copy or retrieve instructions.	E Cache
3.2. The start-up process of a computer.	G Boot
3.3. A component that performs basic mathematical tasks and logical functions.	C ALU
3.4. A device that physically connects all the internal components of a computer.	B Motherboard
3.5. A storage method that makes use of the Internet.	I Online storage
3.6. The process of pulling scattered bits of data together.	H Disk defragmentation

4. Fill in the missing word(s) in the following statements. Provide only ONE answer for each space.
- a. If you want to delete all the temporary files created by the operating system use i) \_\_\_\_\_ (1)  
*Answer: i) disk clean-up*
- b. Components on a motherboard are connected with ii) \_\_\_\_\_. (1)  
*Answer: ii) traces*
- c. The speed of the iii) \_\_\_\_\_, which is measured in gigahertz, determines how much data your computer can process in a specific time. (1)  
*Answer: iii) central processing unit*
- d. The CPU fetches instructions from the hardware that needs to be iv) \_\_\_\_\_. Then the CPU translates the instructions to v) \_\_\_\_\_. (2)  
*Answer:*  
 iv) processed  
 v) binary code
5. Look closely at the advert below and answer the following questions.



**Product Specifications**

Windows 10 Home 64  
 Intel Core i3-5005U 2.8 GHz  
 1 TB 5400 rpm SSD  
 4 GB DDR4-2133 SDRAM  
 802.11b/g/n and Bluetooth 4.0 combo  
 15.6" diagonal HD SVA BrightView WLED backlit (1366 x 768)

- 5.1 What is the speed of the CPU in the computer? (1)  
*Answer: 2.8 GHz.*
- 5.2 How big is the volatile memory? (1)  
*Answer: 4 GB.*
- 5.3 How much storage capacity does the computer have? (1)  
*Answer: 1 TB.*
- 5.4 Which operating system does the computer use? (1)  
*Answer: Windows 10 Home 64.*

- 5.5** What does the 15.6" specification in the advert refer to? (1)  
*Answer: His external hard drive.*
- 5.6** What does the 1366 x 768 specification refer to? (1)  
*Answer: Screen/Monitor size.*
- 5.7** What does the SSD acronym stand for? (1)  
*Answer: Solid State Drive.*
- 5.8** Give TWO reasons why users would prefer an SSD instead of an HDD? (2)  
*Answer: Possible answers:*  
*Less noise*  
*No moving parts*  
*Faster*  
*Uses less electricity*  
*More robust/don.t damage easily.*
- 5.9** Suggest ONE way you can use to transfer data from this computer. (1)  
*Answer: Possible answers:*  
*Via Bluetooth*  
*Via Wi-Fi*
- 6.** Ronaldo has recently bought a new external hard drive for his laptop computer, since his laptop has started running out of space. Ronaldo's laptop has an SSD with a storage capacity of 500 MB while his new external hard drive a storage capacity of 1 GB.
- 6.1** Which of Ronaldo's devices has the highest storage capacity? (1)  
*Answer: His external hard drive.*
- 6.2** When Ronaldo connects his external hard drive to his laptop, his laptop detects it but cannot read it. What should Ronaldo do to figure out what is wrong with the external hard drive. (1)  
*Answer: He should run a disk scan on the hard drive. ✓*
- 6.3** Ronaldo finds out that he should format his new external hard disk. Why should he do this? (1)  
*Answer: Use the following as an assessment guideline:*  
*Since his hard drive is new, the computer needs him to prepare his external hard disk to store data. ✓*
- 6.4** Over the past three years, Ronaldo's laptop has become slower. Mention three things that might be causing this. Also provide a possible solution to each problem. (6)  
*Answer: Use the following as an assessment guideline:*  
*Too many programs open – close some programs*  
*Virus infection – scan and clean hard drive*  
*Too little RAM (resources) – Upgrade*  
*Scattered files – Defragment the hard drive*

TOTAL: [40]

## SOFTWARE



## CHAPTER OVERVIEW

Unit 4.1 Storage devices

Unit 4.2 Processing devices

Unit 4.3 Basic troubleshooting

Unit 4.4 Basic troubleshooting

Unit 4.5 Basic troubleshooting

Unit 4.6 Basic troubleshooting



The following learning outcomes are covered by this chapter:

- Define the role of application software
- Discuss application software in terms of collaboration and communication software
- Define compatibility issues in software
- Describe why software must be updated
- Describe software for physically challenged users
- Define the advantages and disadvantages of online or cloud storage
- Discuss cloud-based applications with a focus on Google Docs and Microsoft Office 365

GRADE: 11

DATE:

TEACHING TIME: 2 hours

## Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader

## INTRODUCTION

In Grade 10, learners learned about what software is. Software is the programs that contain the instructions you use to tell the computer what you want it to do. There are two types of software:

1. Application software allows you to perform tasks on the computer, for example, playing music or games and creating presentations, spreadsheets and documents.
2. System software controls and manages the operations of the computer.





## Activity 4.1

## Memorandum

1. a. Which of the following video players is only available on the World Wide Web?

- A. VLC media player
- B. YouTube
- C. Media player
- D. iTunes

*Answer: B*

b. Which of the following is not antivirus software?

- A. NOD32
- B. Avast
- C. AVG
- D. AMG

*Answer: D*

c. What is the file extension for animated images?

- A. \*.jpeg
- B. \*.mp3
- C. \*.gif
- D. \*.mp4

*Answer: C*

2. Match column B with column A:

COLUMN A	ANSWER
2.1. An application that allows you to watch videos and listen to music that is stored on your computer or streamed from an online source.	A Media player
2.2. A program used to create, edit and manipulate text documents.	C Word processor
2.3. Communications software that allows you to send and receive electronic communications from other people.	G Outlook
2.4. A program that provides real-time protection against viruses, malware and other malicious software for your computer.	B Antivirus
2.5. Multimedia software that allows you to create, edit and manipulate images and other visual media such as brochures and logos.	F CorelDRAW
2.6. A program that is used for creating and displaying presentations	D PowerPoint
2.7. Basic image manipulation and drawing software that is built-in to Microsoft Windows	E Paint
2.8. Chat application used for collaboration in business environments.	H Slack

3. Answer the following questions in your own words:

a. Explain what antivirus software is used for.

*Answer:*

b. List two examples of multimedia software and describe what they are specifically used for.

*Answer: Some possible examples (any two of the following):*

*YouTube, video player, only available on the World Wide Web.*

*iTunes, video and music player that integrates internet radio broadcasting and mobile device management.*

*Adobe Flash Player, used to display interactive web pages and online games as well as audio and video content. Mostly unused now.*

*Adobe Photoshop, InDesign and Illustrator; CorelDRAW, creating images and graphics, animations and GIFs.*

*Adobe Dreamweaver, creating websites*

*Adobe Premiere Pro or Adobe Premier Elements, video editing*

*Adobe Audition, sound and music editing*

- c.** Define communications software.

*Answer: Communication software is the loose group of applications that allow users to share files, text and video or audio messages over an internet connection.*

- d.** Why does communications software make it easier for people to communicate?

*Answer: Some possible examples*

*Since it is internet based, it is easier to access than traditional communication tools.*

*It can be accessed on smartphones as well as laptops and desktop computers*

*It allows people to easily share their work and collaborate*



## Activity 4.2

## Memorandum

1. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
  - a. Microsoft Office 2016 is an example of a subscription service.  
*Answer: False, 365*
  - b. Microsoft refers to their patches as hotfixes.  
*Answer: True*
  - c. An installed SP also usually updates the version number for Microsoft Office.  
*Answer: False, Windows*
  - d. Most SPs are provided for a fee.  
*Answer: False, free of charge*
2. Answer the following questions in your own words:
  - a. Explain what a compatibility issue is.  
*Answer: Compatibility issues come up when users are using the same type of software for a task, such as word processors, that cannot communicate with each other. This could be due to a difference in their versions or that they are made by different companies.*
  - b. Describe what backwards compatibility is.  
*Answer: Backwards compatibility is the ability of newer software to interact with files (or programs or systems) made with older versions of that software.*
  - c. Why are more software companies offering subscription services for their products?  
*Answer: To make sure that software stays up to date and that users have access to the most recent features and fixes.*
  - d. Elaborate on the main difference between buying software and using a subscription service.  
*Answer: When you purchase software, like Microsoft Office 2016, you own your copy of that software. Subscription based software does not actually belong to you, it is still the property of the company that created it.*



## Activity 4.3

## Memorandum

1. Match column B with column A:

COLUMN A	ANSWER
1.1. Special settings and functions to make using a computer easier for physically challenged users.	C Accessibility software
1.2. Device used to interpret websites for visually impaired readers.	A Screen reader
1.3. Click on EASE OF ACCESS on the CONTROL PANEL to view	D Accessibility options

2. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)

- a. To find accessibility options, you need to click on ease of use.

*Answer: False, ease of access*

- b. Speech recognition software reads text aloud for blind users.

*Answer: False, text-to-speech*

- c. Closed captions can help deaf and hearing-impaired users watch videos.

*Answer: True*

3. Answer the following questions in your own words:

- a. What are accessibility settings? Give two examples.

*Answer: A series of special settings and functions to make using a computer easier for physically challenged users. Examples include:*

*Colour settings for colour blind people to make browsing the web easier.*

*Magnifying an area of the screen to make it easier to read for partially blind users.*

*Text-to-speech software to read the typed text out loud to blind users.*

*Displaying visual notifications instead of having a notification sound to alert users who are hard of hearing to potential problems or updates for their computer.*

*Speech recognition software to allow users to control their computers using their voices.*

- b. How do you access the accessibility features in Windows 10?

*Answer: Click on the Windows icon, search for CONTROL PANEL and click on EASE OF ACCESS*

- c. Give one example of software for physically challenged users.

*Answer: Text-to-speech, screen readers or speech recognition*

- d. Why is it important to design websites with accessibility in mind?

*Answer: Screen readers can struggle with interpreting websites that have not been designed for visually impaired readers. Since websites and web pages are mostly designed as a visual experience, users who cannot see these visual elements struggle to interact with the sites.*

- e. List four ways website developers can make their websites more accessible.

*Answer:*

*Give links and buttons descriptive labels (saying 'click here to sign up' instead of just 'click here').*

*Give images and graphics good descriptions and ALT-TEXT.*

*Use headings to organise the content on a website's pages.*

*Use descriptive titles for pages.*

*Use closed captions to help deaf and hearing-impaired users watch videos and learn from them.*



## Activity 4.4

## Memorandum

1.
  - a. Which of the following is Google's online storage service?
    - A. Drive
    - B. Docs
    - C. Chrome
    - D. OneDrive

*Answer: D*
  - b. Which of the following is NOT part of the Microsoft Office 365 package?
    - A. Outlook
    - B. OneNote
    - C. PowerPoint
    - D. Notepad

*Answer: D*
  - c. Which application does not need an internet connection to work?
    - A. Notepad
    - B. Google Docs
    - C. Office 365
    - D. Google Maps

*Answer: A*

2. Match column B with column A:

COLUMN A	ANSWER
2.1. Which online office suite has the advantage of being used with any operating system and web browser?	E Google Docs
2.2. Which company's online services have different payment packages?	D Microsoft Office 365
2.3. Microsoft's version of a file hosting service that synchronises with Microsoft's Office Online services.	A OneDrive

3. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
  - a. You have access to a full range of formatting options in Google Docs.
 

*Answer: False, limited*
  - b. Microsoft Office 365 is a free service.
 

*Answer: False, subscription*
  - c. You can use Office 365 on multiple devices.
 

*Answer: True*
  - d. Google Docs is a free, online-only office suite but you pay for extra storage.
 

*Answer: True*
  - e. Google Drive is separate from your Gmail account.
 

*Answer: False, part of*
4. Answer the following questions in your own words:
  - a. Explain what a cloud-based application is.
 

*Answer: Cloud-based applications are any applications that are accessed using an internet connection instead of being stored in a device's memory.*
  - b. List the steps taken to access Google Drive and open a spreadsheet.
 

*Answer: To access Google Docs, you will need to go to Google Drive. You can do this by clicking on this icon in your Gmail account, followed by clicking on Google Drive.*

*Alternatively, you can visit <https://drive.google.com>.  
Once you are in your Google Drive account, click on New.  
Click on Google Sheets and choose Blank Template to get started.*

- c.** List two advantages Google Docs has over Microsoft Word.

*Answer: Any two of the following:*

*The software is always up to date and does not require you to download or install anything.*

*You can access your documents anywhere in the world as long as you have internet access and access to your Google account.*

*It is easier to share and work with others in real time and multiple people can work on the same document at the same time.*

*Your documents do not take up space on your computer's storage. Instead, they are saved on the cloud.*

*Because the documents are saved online, your documents are backed up automatically, so, if your computer or smartphone is stolen, you will still have access to your work.*



## Activity 4.5

## Memorandum

1.
  - a. Which of the following is not an example of online storage?
    - A. iCloud
    - B. Google Drive
    - C. Google Docs
    - D. Dropbox

*Answer: C*
  - b. Which of the following has potentially the largest storing space?
    - A. Primary storage
    - B. Cloud-based storage
    - C. External HDD
    - D. SSD

*Answer: B*

2. Match column B with column A:

COLUMN A	ANSWER
2.1. Information gets stored on a physical computer, usually in a server farm.	<i>E Online storage</i>
2.2. Cloud-based storage is considered...	<i>C Tertiary storage</i>
2.3. The most important thing needed to access online storage; this is also a disadvantage.	<i>A Internet access</i>

3. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
  - a. Online storage has limited free space, you pay to get more space.
 

*Answer: True*
  - b. Dropbox is only compatible with the Microsoft Windows operating system.
 

*Answer: False, all operating systems*
  - c. Spotify songs are stored on a cloud-based storage system.
 

*Answer: True*
4. Answer the following:
  - a. Explain how your data can potentially be lost when using Cloud storage.
 

*Answer: Online storage is vulnerable to attacks (hacking) and distribution.*
  - b. List THREE advantages of cloud-based storage.
 

*Answer:*

*Using online storage allows you to access your information anywhere in the world.*

*Online storage frees up physical storage space on storage devices.*

*Online storage is a reliable way to backup important or critical information.*

*Data stored online can be shared more easily.*

*Online storage lowers the amount of strain on bandwidth, since you can send a link to the data instead of emailing it.*

- 1.1** What is the definition of software? (1)
- A.** Programs that allow you to perform specific tasks on the computer.
  - B.** Programs that control and manage the operations of the computer.
  - C.** Programs that contain the instructions you use to tell the computer what you want it to do.
  - D.** Programs that allow different applications to communicate with each other.
- Answer: C*
- 1.2** Which of the following is NOT an example of application software? (1)
- A.** Microsoft Excel
  - B.** Norton Antivirus
  - C.** Windows XP
  - D.** Mozilla Firefox
- Answer: C*
- 1.3** Which of the following is multimedia software? (1)
- A.** Microsoft Paint
  - B.** Microsoft Access
  - C.** Microsoft Edge
  - D.** Notepad
- Answer: A*
- 1.4** Which of the following is an example of system software? (1)
- A.** WordPad
  - B.** Windows Defender
  - C.** Google Chrome
  - D.** Windows Media Player
- Answer: B*
- 1.5** Hotfixes are also known as \_\_\_\_\_. (1)
- A.** Traces
  - B.** Hotspots
  - C.** Patches
  - D.** Service packs
- Answer: C*
- 2.** Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** You can own subscription software as long as you pay for it. (1)  
*Answer: False. You can use subscription software as long as you pay for it. ✓*
  - b.** Subscription software can update itself automatically. (1)  
*Answer: True. ✓*
  - c.** Service packs are updates for system software. (1)  
*Answer: True. ✓*
  - d.** Google docs has all the features that Microsoft Word has. (1)  
*Answer: False. Google docs has most of the features that Microsoft Word has. ✓*
  - e.** Multimedia software refers to the plans you use to create and make multimedia. (1)  
*Answer: False. Multimedia software refers to the programs you use to create and make multimedia. ✓*



3. Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (10)

COLUMN A	ANSWER
2.1. Software used to create 3D models.	A Adobe Photoshop
2.2. Software used to play movies and music.	E VLC media player
2.3. Software to email people online.	I Microsoft Outlook
2.4. Software used to edit photos and GIFs.	A Adobe Photoshop
2.5. Software for data storage.	H Dropbox C Google Drive

- 4.1 Describe what backwards compatibility is. (2)

*Answer:* Backwards compatibility is the ability of newer software ✓ to interact with things made with older versions of that software. ✓

- 4.2 Explain briefly what accessibility settings are? (2)

*Answer:* Accessibility settings are a series of special settings ✓ and functions ✓ to make using a computer easier ✓ for physically challenged users. ✓

- 4.3 Give TWO examples of accessibility settings. Mention which disability could benefit from this setting and how. (4)

*Answer:* Some possible examples (any two of the following):

Colour settings ✓ for colour blind people ✓ to make browsing the web easier. ✓

Magnifying an area of the screen ✓ to make it easier to read ✓ for partially blind users. ✓

Text-to-speech software ✓ to read the typed text out loud ✓ to blind users. ✓

Displaying visual notifications instead of having a notification sound ✓ to alert users who are hard of hearing ✓ of potential problems or updates for their computer. ✓

Speech recognition software ✓ to allow paralysed users ✓ to control their computers using their voices. ✓

- 4.4 Identify the compatibility issue for the following scenarios. (4)

SCENARIO	ANSWER
1. While playing a newly installed game you realise that at certain point on the game map the controllers are not responding the way they should.	Software bugs ✓
2. The new functions advertised by application is not working or showing on my device.	Updating software ✓
3. As soon as I open a Word document on the school computer, a window pops up saying that certain characters will not be displayed.	Updating software ✓
4. Every time I use a calculator app on my laptop and press the multiply button it adds the values instead.	Patches and service packs ✓

- 4.5 Your teacher has asked you to create a presentation that includes at least one video, some audio clips and an animation. Which THREE software programs will you use to make these multimedia items and why? (6)

*Answer:* Use the following as an assessment guideline:

Microsoft PowerPoint ✓ to create your presentation because you can add animations, videos and audio clips to it. ✓

Adobe Audition ✓ to edit your audio clips. ✓

Adobe Premiere Pro or Adobe Premier Elements ✓ to edit your video. ✓

Adobe Animate or Microsoft PowerPoint ✓ to create your animation. ✓

- 4.6** Describe the difference between a service pack and a patch. (4)  
*Answer: Use the following as an assessment guideline:*  
*patches fix bugs in a program ✓*  
*service packs contain a number of patches, such as security fixes, more features, etc. ✓*
- 4.7** Provide two reasons why it is important to update your software regularly. (2)  
*Answer: Use the following as an assessment guideline:*  
*so that you are current with all the security features, latest definitions, bug fixes, etc. ✓*
- 4.8** Give one advantage Microsoft Word has over Google Docs. (1)  
*Answer: Use the following as an assessment guideline:*  
*more functionalities/features ✓*  
*better user interface ✓*  
*more intuitive use ✓*  
*familiar to most users ✓*

TOTAL: [40]

# HARDWARE, SOFTWARE AND COMPUTER MANAGEMENT



## CHAPTER OVERVIEW

Unit 5.1 Basic system requirements

Unit 5.2 Software installation

Unit 5.3 File management



The following learning outcomes are covered by this chapter:

- List and describe basic system requirements and how they relate to software
- Discuss the difference between installing software from an online download and a portable storage medium
- Describe the installation process
- Explain how to manage files and folders on a computer

GRADE: 11

DATE:

TEACHING TIME: 2 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader

## INTRODUCTION

In this chapter, learners will learn what basic system requirements are and how they link to software. They will learn how to install software from a portable storage medium (such as a CD) and from an internet download, as well as dig deeper into file management and what file attributes are. They will also learn how to import and export files and how to search for files.



## Activity 5.1

## Memorandum

1. Answer the following questions related to the advertisements below:

Features for **DELL 39 cm (15.6") Inspiron 3552 Intel Celeron Laptop**

Operating System: Windows 10 Home  
 Processor: Intel Celeron - N3060 (Up to 2.48 GHz)  
 Memory: 4 GB RAM  
 Storage: 500 GB hard disk drive  
 Graphics: Intel HD  
 Optical Drive: Yes  
 Display Size: 39 cm (15.6")  
 Display Resolution: 1366 x 768  
 Touch Display: No  
 HDMI Input: Yes  
 USB Ports: Yes  
 SD Card Reader: Yes  
 Connectivity: Wi-Fi / Ethernet / Bluetooth

Adobe Photoshop User Guide > Introduction to Photoshop > Select an article

### Minimum system requirements for Photoshop

**Windows**

	Minimum requirement
Processor	Intel® or AMD processor with 64-bit support*, 2 GHz or faster processor
Operating system	Microsoft Windows 7 with Service Pack 1 (64-bit)*, Windows 10** (Version 1709 or later)
RAM	2 GB or more of RAM (8 GB recommended)
Hard disk space	31 GB or more of available hard-disk space for 64-bit installation; additional free space required during installation (cannot install on a volume that uses a case-sensitive file system)
Monitor resolution	1024 x 768 display (1280x800 recommended) with 16-bit color and 512 MB or more of dedicated VRAM; 2 GB is recommended***
Graphics processor acceleration requirements	OpenGL 2.0-capable system
Internet	Internet connection and registration are necessary for required software activation, validation of subscriptions, and access to online services †

ON THIS PAGE  
 Minimum system requirements for Photoshop  
 Language versions available for Photoshop  
 Graphic processor requirements  
 System requirements for Adobe Camera Raw  
 Applies to: Adobe Photoshop  
 Last Published: April 3, 2019

Was this page helpful?

- a. Does the DELL laptop have the minimum requirements for windows 10? How can you be sure without looking at the minimum hardware needed for Windows 10?  
*Answer: Yes, it comes preinstalled with Windows 10 and can therefore run it.*
- b. What does OS mean in the Call of Duty game requirements?  
*Answer: Operating system.*
- c. What does display resolution 1366 x 768 mean?  
*Answer: The monitor can display 1366 x 768 pixels.*
- d. Describe what is meant with Touch Display.  
*Answer: A touch display is a touch screen that also functions as a monitor.*
- e. Explain what 32-bit means.  
*Answer: A 32-bit processor accepts instructions that have 32 binary digits.*
- f. Decide if the Call of Duty: Modern Warfare 2 and Photoshop in Figure 5.1 can be installed on the laptop and add relevant comments.  
*Answer: Learner's own answer. The learner must make mention of whether or not the laptop will be able to run the software efficiently.*
- g. What does VRAM stand for?  
*Answer: Video Random Access Memory*
- h. State which component of the computer will be the easiest and cheapest to upgrade.  
*Answer: Either HDD or RAM*

- i. List the different processors names in the adverts, sort them from fastest to slowest.

*Answer: True*

*1 gigahertz (GHz) or faster processor or SoC*

*Intel Celeron - N3060 (Up to 2.48 GHz)*

*AMD Phenom II X4 810*

*Intel Core i3-530 2.9GHz*

2. Write True or False next to the question number. Correct the statement if it is FALSE. (You may not simply use the word NOT to change the statement.)

- a. If your hardware does not meet the system requirements, it means that the software will not work.

*Answer: True*

- b. Certain programs can run even if you have no RAM.

*Answer: False, cannot run.*

- c. Certain programs cannot work if you do not have the right operating system.

*Answer: True*

- d. The motherboard is the core component in a computer that brings all the different aspects of a computer together.

*Answer: True*



## Activity 5.1

## Memorandum

1. Write True or False next to the question number. Correct the statement if it is FALSE. (You may not simply use the word NOT to change the statement.)
  - a. You completely eradicate the associated files and folders when you uninstall a program.  
*Answer: True*
  - b. Some installation software files are sold on a flash disk.  
*Answer: False, CD or DVD*
  - c. The installation wizard will guide you through what to do when installing software.  
*Answer: True*
  - d. Most hardware is already installed on the Microsoft operating system thus most hardware is plug-and-play devices.  
*Answer: False, device drivers*
  - e. Most primary hard drives are saved with the drive location of E:\.  
*Answer: False, C:\*



## Activity 5.3

## Memorandum

1. a. Which attribute allows the user to view but not edit the file?

- A. Hidden  
B. Security  
C. Read-only  
D. Sharing

*Answer: C*

- b. Which one of the following file extensions are not used in typing a report?

- A. .txt  
B. .docx  
C. .pdf  
D. .png

*Answer: D*

- c. Which of the following file extensions are not part of Microsoft Office 365 package?

- A. .txt  
B. .docx  
C. .xlsx  
D. .pttx

*Answer: D*

2. Match column B with column A:

COLUMN A	ANSWER
2.1 File extension for an animation	A gif
2.2 File extension for a picture	D jpeg
2.3 Term used to describe information on where and when a photograph was taken.	F Geo-satellite
2.4 To convert a file into the format required by the application being used. For example, most word processing programs can ... documents created in other word processors.	B Import
2.5 To save a copy of the current open document, database, image or video into a file format required by a different application.	G Geo-location

3. Write True or False next to the question number. Correct the statement if it is FALSE. (You may not simply use the word NOT to change the statement.)

- a. You can find a complete list of all file types at [FileInfo.com](http://FileInfo.com)

*Answer: True*

- b. The file extension can indicate what type of data is on the file as well as what program is needed to open the file.

*Answer: True*

- c. The most important file attributes are security and sharing.

*Answer: False, read-only and hidden*

4. Answer the following in your own words.

- a. How do file extensions help you identify the type of document?

*Answer: File extensions usually link to a specific file type. For example, seeing a file that ends in .docx will let you know that it is a Microsoft Word document*

- b.** Give two examples of standard file types.

*Answer: Any two of the following:*

*\*.pdf  
\*.docx  
\*.rtf  
\*.txt\*.xml  
\*.mp3  
\*.flv  
\*.gif  
\*.jpg  
\*.accdb  
\*.xlsx*

- c.** What does the Properties window tell you about a file?

*Answer: The file properties window shows you a range of information about a file, such as its file type, size and when it was last modified. It can also show you information on where a photograph was taken (its geo-location) and even what type of camera was used to take it. The properties window will also give you information on how you can manipulate the file.*

- d.** Explain how you can see the file properties of a document.

*Answer: To see the properties of a file, right click on the file name. Click on PROPERTIES.*

- e.** What are read-only and hidden files?

*Answer: READ-ONLY files cannot be changed, edited or saved. They can only be opened and read. This is done to protect the data in the file from being edited accidentally. HIDDEN files are any files with the hidden attribute turned on. This means that these files are invisible while browsing through folders – you cannot see them without specifically allowing all of them to be seen.*

- f.** Explain how you search for a file in Windows 10.

*Answer: You can use FILE EXPLORER to search for a file you saved. If you remember the file name, you can simply enter that in the search box in File Explorer.*

*You can also search by file type or size. Using an asterisk (\*) will let you search for groups of files,*



- 1.1** Which of the following is NOT a system requirement? (1)
- A.** Type of CPU
  - B.** Type of RAM
  - C.** Type of operating system
  - D.** Storage capacity
- Answer: B*
- 1.2** A hidden file is \_\_\_\_\_. (1)
- A.** A file that cannot be changed
  - B.** A file that cannot be edited
  - C.** A file that cannot be searched for
  - D.** A file that cannot be saved
- Answer: C*
- 1.3** A software installer will use \_\_\_\_\_. (1)
- A.** A password
  - B.** Online verification system
  - C.** A CD
  - D.** An installer wizard
- Answer: D*
- 1.4** Which of the following is an example of a program setup file? (1)
- A.** Word.docx
  - B.** Photoshop.psd
  - C.** Chrome.exe
  - D.** Notepad.rtf
- Answer: C*
- 1.5** A license agreement indicates the manufacturer's \_\_\_\_\_. (1)
- A.** Terms of use
  - B.** Contact details
  - C.** Rules and regulations
  - D.** Terms of agreement
- Answer: A*
- 2.** Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** Before a person can use installed software, they must accept the license agreement. (1)  
*Answer: True ✓*
  - b.** Uninstalling software involves removing the program and all its files from your computer. (1)  
*Answer: True ✓*
  - c.** File properties are settings linked to computer files that give or deny users access to certain rights. (1)  
*Answer: False. File attributes are settings linked to computer files that give or deny users access to certain rights. ✓*
  - d.** Importing a file converts it from one format to another. (1)  
*Answer: True. ✓*
  - e.** Windows Explorer is used to search for files on a computer. (1)  
*Answer: True. ✓*

3. Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (10)

COLUMN A	ANSWER
3.1. Where you should go to find information about a file.	B Details tab
3.2. A file that can be opened and edited by Adobe Acrobat.	E .pdf
3.3. The properties a gamer must look at to see if a game will run on their computer.	A System requirements
3.4. Where you should go to find out about what access the system and other users have to the file	G Security tab
3.5. A file that can only be read and not edited or saved	C Read-only file

- 4.1 Name TWO methods you can use to install software. (2)

*Answer: You can install software in one of two ways:*

*By downloading the software files from a website; or ✓*

*By purchasing a CD or DVD from a store. ✓*

- 4.2 What is the advantage of using a custom install method? (1)

*Answer: This usually makes the installation process a bit longer but safer. ✓*

- 4.3 What is the difference between exporting a file and importing file? (2)

*Answer: To export a file means to convert it into a format other than the one it currently is in. ✓*

*To import a file is to bring it from another program into the one you are using. ✓*

- 4.4 Give TWO example file extensions for the following file types: (2)

- a. Audio files

*Answer: Some possible examples:*

*.mp3 ✓*

*.m4a ✓*

*.wav ✓*

*.wma ✓*

- b. Text files (2)

*Answer: Some possible examples:*

*.txt ✓*

*.rtf ✓*

- c. Video files (2)

*Answer: Some possible examples:*

*.ogg ✓*

*.mov ✓*

*.mp4 ✓*

- d. Picture files (2)

*Answer: Some possible examples:*

*.png ✓*

*.jpg ✓*

*.tiff ✓*

*.bmp ✓*

- e. Document files (2)

*Answer: Some possible examples:*

*.doc ✓*

*.docx ✓*

*.odt ✓*

5. The Civie Computer Club meets once a week to discuss new and trendy computer related topics. The club members frequently need to install new versions of software by using a CD. Installing software from a CD is easy since you just need to follow the installation wizard.
- a. Briefly explain what an installation wizard is. (2)  
*Answer:*  
*A software installation wizard presents a user with a sequence of dialog boxes that lead the user through a series of well-defined steps.*
- b. Activation codes are usually sent via e-mail. Explain what an activation code is (2)  
*Answer:*  
*The activation code consists of characters and numbers and is essential in order to activate your product.*
- c. Explain the difference between a full and custom installation. (4)  
*Answer:*  
*Full installation will install all features without the user selecting which he/she wants. Whereas a custom installation, the user choose which features/components should be installed.*
- d. The club members sometimes need to remove programs. Outline the correct way of uninstalling software. (2)  
*Answer:*  
*Go via Control Panel, choose Programs and features and select the program to be uninstalled, and select uninstall. You should not delete a program as a way of uninstalling it.*

TOTAL: [40]

# SOCIAL IMPLICATIONS OF HARDWARE

## CHAPTER OVERVIEW

- Unit 6.1 Input and output devices for physically challenged users
- Unit 6.2 Health issues due to input and output devices
- Unit 6.3 Protecting your hardware
- Unit 6.4 Power supply and settings

The following learning outcomes are covered by this chapter: 

- Identify input and output devices for physically challenged users
- Discuss the health issues caused by input and output devices
- Describe how to protect your hardware from theft and damage

GRADE: 11

DATE:

TEACHING TIME: 2 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader

## INTRODUCTION

This chapter will focus on input and output devices for physically challenged users, the health issues associated with hardware devices, how to protect your devices from theft or damage and how to protect your devices from power surges and power failures.



## Activity 6.1

## Memorandum

1.
  - a. Stephen Hawking was diagnosed with?
    - A. ALS
    - B. ADHD
    - C. CTS
    - D. Parkinson's Disease

*Answer: A*
  - b. Which of the following is NOT a device for the physically challenged?
    - A. Microphones
    - B. On-screen or virtual keyboards
    - C. Monitor
    - D. Keyguards

*Answer: A*

2. Match Column B with Column A:

COLUMN A	ANSWER
2.1 A device that recognise hand gestures.	C <i>Gesture recognition devices</i>
2.2 A device that is used by everybody, not just physically challenged users.	E <i>Microphone</i>
2.3 A switch that operates the computer when users breathe into or through special tubes.	A <i>Sip and puff devices</i>
2.4 An output device used by physically challenged users.	D <i>Screen reader</i>
2.5 Metal or plastic plates that allow users to rest their hands on a keyboard without accidentally pressing the keys.	B <i>Keyguards</i>

3. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
  - a. Braille interfaces are for deaf people.
 

*Answer: False, blind*
  - b. The Paste keyboard shortcut uses the Ctrl + P keys.
 

*Answer: False, Ctrl + V*
  - c. Sighted users may not be able to use screen readers.
 

*Answer: False, blind users*
- 4.1 List the advantage and disadvantage of the following devices:
  - a) On-screen or virtual keyboards
 

*Answer:*

*Can be operated with a variety of input devices (such as a head mouse or eye mouse).*

*The size and layout can be customised for each user.*

*They can be very slow to use, especially when a user is learning to use their head or eye mouse.*

*What the user is typing can easily be read by others.*
  - b) Braille keyboards
 

*Answer:*

*Braille keyboards are relatively easy to learn. They can also adjust to updated technology.*

*Sighted users may not be able to use them unless they know Braille.*

*Errors cannot be erased.*
  - c) Head-mounted pointers

*Answer:*

*Users who cannot use their hands or feet, or who do not have the fine motor skills needed to operate joysticks or mice, may find using a head-mounted pointer easier.*

*They can be very difficult to learn how to use and the head-mounting gear may restrict a user's movement further.*

**d)** Gesture recognition devices

*Answer:*

*Answer can control the device using gestures, making them easier to use than other pointing devices.*

*Users with Parkinson's disease, cerebral palsy or other diseases affecting muscle control may not be able to use the device effectively.*

**e)** Sip and puff devices

*Answer:*

*Sip-and-puff devices give severely disabled users the chance to interact with computing devices and allow them to communicate via those devices.*

*Sip-and-puff devices need to be calibrated to each user and the user must have decent breath and oral motor control to use the device.*

*Sip-and-puff systems can also be very expensive to set up.*



## Activity 6.2

## Memorandum

1.
  - a. Which of the following equipment does NOT carry a lot of germs?
    - A. Smartphones
    - B. Computer mice
    - C. Keyboards
    - D. Monitors

*Answer: D*
  - b. Which one of the following is NOT an effect of sitting too long in front of a computer?
    - A. Obesity
    - B. Increased blood pressure
    - C. Hair loss
    - D. High blood sugar

*Answer: C*
  - c. Which of the following is NOT an injury due to improper ergonomics?
    - A. Repetitive strain injury
    - B. Computer vision syndrome
    - C. Carpal tunnel syndrome
    - D. Back strain

*Answer: D*
2. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
  - a. Repetitive strain injuries and eye strain are examples of health issues due to input and output devices.

*Answer: True*
  - b. Hardware needs to be protected from theft and damage.

*Answer: True*
  - c. Computer and smartphone screens can be set to have less red light, lessening the glare and reducing eye strain.

*Answer: False, blue*
  - d. You will have good back support when you place your hips and back on the back of the chair.

*Answer: True*
3. Answer the following questions in your own words:
  - a. Define ergonomics.

*Answer: Ergonomics is the study of how to arrange furniture and equipment in a way that will make people more comfortable and efficient in their work.*
  - b. List two ways how you can keep your hardware clean and hygienic.

*Answer: Any two of the following:*  
*Clean your smartphone every day with a disinfectant wipe, making sure that you get into all the nooks and crannies without damaging the device.*  
*Avoid eating at your desk, as food crumbs can get stuck under your keyboard keys.*  
*Wipe down your screen, keyboard and mouse at least once a day with a disinfectant wipe and make sure to give your keyboard a deep clean every month.*
  - c. List three ways that you can reduce the amount of strain on your body.

*Answer: Any three of the following:*  
*Make sure that your desk, chair and screen are all at a comfortable height.*  
*Sit properly and do not slouch or hunch your shoulders. This could cause backache and neck pain.*  
*Stand up and move around at least once an hour. Try using a standing desk (if possible) for some of the time you are working.*

*Never bend your neck to look at your screen. Always make sure that your chin is parallel to your desktop.*

*Make sure your shoulders are relaxed when you are typing (not raised or hunched), your knees are at a 90° angle and your feet are flat. If you are too short for your feet to touch the floor and have your arms at a comfortable angle, find a footrest to put your feet on.*

*Make sure your back and hips are in contact with the back of the chair you are sitting on and that the chair has good back support.*





## Activity 6.3

## Memorandum

1. Answer the following questions in your own words:

a. List four ways that you can protect your hardware from theft.

*Answer:*

*Use locking cables attached to walls or hard-to-move desks to lock items such as monitors into place.*

*Use lockable cages or boxes for things such as computer cases and servers.*

*Invest in lockable docking stations for laptops. These docks lock as soon as you click a laptop into place, keeping your laptop safe from theft.*

*Always be alert and aware of your surroundings when using mobile computing devices such as smartphones and tablets, as these can be snatched out of your hands very easily.*

*Make sure to store your laptops, smartphones and tablets in a secure place when you are not using them. Never leave your devices alone or locked in a vehicle when you are in a public place.*

b. Give three examples of ways to protect your hardware devices from damage?

*Answer: Any 3 of the following*

*Always use a screen protector and case for smartphones and tablets. This will protect them if they fall and will stop the screen from cracking.*

*Avoid spilling liquids on the keyboard and mouse. At best, liquid will cause the keys or buttons to stick and at worst, the device will stop working completely.*

*Make sure that any device drivers you need are up to date and correctly installed.*

*Make sure that your input and output devices are dust free and that they are not exposed to extreme heat or cold.*

*Handle devices such as scanners and displays carefully and only move them when necessary.*



## Activity 6.4

## Memorandum

1. Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
  - a. Devices with an Energy Star rating are usually more energy efficient.  
*Answer: True*
  - b. All the data on your hard drive will be lost in case of a power failure.  
*Answer: False, RAM*
  - c. Your display should never be brighter or darker than the area you are using it in.  
*Answer: True*
2. Answer the following questions in your own words:
  - a. Describe a UPS.  
*Answer: Uninterruptible power supplies are plugged directly into the main power supply to charge their batteries and will immediately start providing power to the computers connected to them in the case of a power failure.*
  - b. Explain how you would protect your device from power failure.  
*Answer: You can protect a device from power failure by having an UPS connected to a desktop computer or server. You can also get rechargeable battery packs for smartphones, tablets and laptops.*

- 1.1** Which of the following is an output device for physically challenged computer users? (1)
- A.** Gesture recognition software
  - B.** Braille interfaces
  - C.** Sip-and-puff devices
  - D.** Braille keyboards
- Answer: B*
- 1.2** What is an advantage of keyguards? (1)
- A.** It reduces the amount of typing errors.
  - B.** It does have a universal standard for its keyboard.
  - C.** It can be operated with multiple input devices.
  - D.** It can be used with speech recognition software.
- Answer: A*
- 1.3** Text-to-speech software can be used by which of the following output devices? (1)
- A.** Monitor
  - B.** Keyboard
  - C.** Printer
  - D.** Speaker
- Answer: D*
- 1.4** Ergonomics does NOT involve \_\_\_\_\_ . (1)
- A.** Making sure people are in a comfortable position.
  - B.** Arranging furniture and equipment.
  - C.** Reducing strain on the human body.
  - D.** Adjusting the lighting of an area.
- Answer: D*
- 1.5** Which of the following will NOT reduce your computer's power usage? (1)
- A.** Unplug your computer when you are not using it.
  - B.** Reduce the brightness of your display.
  - C.** Buy hardware with an Energy Star rating.
  - D.** Reduce your CPU's speed.
- Answer: D*
- 2.** Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** An eye-motion sensor is activated when a user breathes into its special tubes. (1)  
*Answer: False. A sip-and-puff device is activated when a user breathes into its special tubes. ✓*
  - b.** A foot-operated mouse can be used by people who are blind. (1)  
*Answer: A foot-operated mouse can be used by people who do not have hands. ✓*
  - c.** Text-to-speech software uses microphones. (1)  
*Answer: False. Speech recognition software uses microphones. ✓*
  - d.** The interaction between the human body and computing hardware refers to economics. (1)  
*Answer: False. Ergonomics ✓*
  - e.** Looking at a computer monitor for a long time can damage your sight. (1)  
*Answer: True. ✓*

3. Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (10)

COLUMN A	ANSWER
3.1. Something that protects your computer from the damage caused by power cuts.	E UPS
3.2. A standard that determines if a device is energy efficient.	C Energy Star rating
3.3. An object that protects a device from scratches and damage.	B Screen protector
3.4. An object that locks computing devices in place.	F Padlock
3.5. A device that can use biometrics to identify a user.	D Wireless keyboard

4. Mr Riaad is a primary school teacher who teaches eight and nine-year-olds. He wants to teach them how to use computers safely. Since they will be using the computers a lot he is also concerned about their eyesight.

- 4.1 Mention TWO devices that Mr. Riaad's learners can use to improve their interaction with computers. Give a reason for each of your answers. (4)

*Answer: Some possible examples:*

*Virtual keyboards ✓ because the layout of the keys can be adjusted to suit his learner's needs. ✓  
 Gesture-recognition devices ✓ because his learners may not be good at typing so this would be easier to use than a keyboard or a mouse. ✓*

- 4.2 Mention ONE way his learners may NOT benefit from using each of these devices. (2)

*Answer: Some possible explanations:*

*Virtual keyboards: Learners can find them slow to use, because they are not used to using their eyes or head. ✓*

*Gesture-recognition devices: Learners with physical disabilities (for example learners with amputated limbs or paralysis) will not be able to use it effectively. ✓*

- 4.3 Mention THREE things Mr Riaad's learners can do to reduce the strain on their eyes. (3)

*Answer: Some possible answers:*

*Reduce the brightness of her screen's display. ✓*

*Adjust her screen's brightness to suit the area, time of day and lighting. ✓*

*Rest her eyes by looking away from her computer screen for 5 minutes every 20 minutes. ✓*

- 4.4 One of his learners has been struggling to see the letters on her keyboard. Suggest TWO alternative input methods that he could use. (2)

*Answer: Some possible answers:*

*A microphone with speech-recognition software ✓*

*A head-mounted pointer that uses hand pads ✓*

*A gesture-recognition device that reads her hands ✓*

- 4.5 A Head-mounted pointer is an input device for physically challenged users.

- a. Explain how a head-mounted pointer is operated. (2)

*Answer: Some possible answers:*

*This technology is designed to replace the traditional computer mouse for people who cannot use or have limited of their hands.*

*It registers the movement of the user's head and transfers that movement into directly proportional movements on the computer mouse pointer.*

*Head mouse has a wireless sensor that tracks a tiny sensor that is placed either on his or her forehead, glasses, hat, etc.*

b. Give two disadvantages of using a head mounted pointer. (2)

*Answer: Some possible answers:*

*Accuracy*

*Loss of connection to pointer/computer mouse*

*Batteries for eye-tracking device*

4.6 Mr Riaad must travel a lot. Name three things he can do to protect his smartphone and laptop while travelling. (3)

*Answer: Some possible answers:*

*Screen protector for her smartphone's screen ✓*

*Padded computer bag for her laptop ✓*

*A hard cover for her smartphone ✓*

4.7 Mr Riaad often uses trains to travel from one place to another. During this time, he uses his laptop to complete some of his work. Provide four tips he can use to reduce the strain on his body. (4)

*Answer: Some possible answers:*

*Keep your back and hips in contact with the back of her seat ✓*

*Do not slouch or hunch your back ✓*

*Relax your shoulders when typing ✓*

*Do not bend your neck towards your screen ✓*

4.8 List three ways Mr Riaad can teach his learners to save energy. (3)

*Answer: Some possible answers:*

*Use energy-efficient devices ✓*

*To save energy from reprinting; preview documents, email documents ✓*

*Change settings to power/battery saving mode ✓*

*Dim the display, screen timeouts, hibernation, etc. ✓*

TOTAL: [40]

# NETWORKS AND INTERNET TECHNOLOGIES

## CHAPTER OVERVIEW

Unit 7.1	Networks
Unit 7.2	Intranet vs internet
Unit 7.3	Basic network security
Unit 7.4	Internet services

The following learning outcomes are covered by this chapter: 

- Describe local area networks (LANs)
- Discuss the advantages and disadvantages of LANs
- Describe wireless local area networks (WLANs)
- Describe the basic components of a network
- Explain various types of connections
- Discuss the basic components of a network, including workstations, servers and network devices
- Describe how network connection speed is measured on wired and wireless networks
- Explain how wired and wireless network communication works
- Discuss the differences between the internet and an intranet
- Define passwords in terms of basic network security
- Discuss what usernames are
- Describe what access rights are in terms of networks on web services
- Discuss the advantages and disadvantages of various forms of online communication

GRADE: 11

DATE:

TEACHING TIME: 8 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader

## INTRODUCTION

In Grade 10, learners learned about home area networks (HANs) and personal area networks (PANs). HANs are very small networks that usually cover a single home. PANs, on the other hand, are much smaller and are usually designed to serve a single user.

In this section, they will learn about local area networks and wide area networks and how they are generally used.

Memorandum/marking guidelines [H3]



## Activity 7.1

## Memorandum

Answer the following questions:

1. Briefly describe the difference between a workstation and a server.

*Answer: A server is a special device that provides services to its connected devices. These devices are called end-user devices or clients. A single server can provide services to multiple clients at a time. There are many different kinds of servers that perform different jobs depending on their capabilities. Servers include being database server, file server, mail server, print server, web server or any other kind of server required by the user. A workstation is a computer designed for technical or scientific applications while a server is a device that responds to the requests of the clients by providing services to them. Workstation is a computer which requests access to the LAN and services.*

2. List two functions of network software.

*Answer: Helps to set up and install computer networks  
Enables users to have access to network resources in a seamless manner  
Allows administrations to add or remove users from the network  
Helps to define locations of data storage and allows users to access that data  
Helps administrators and security system to protect the network from data breaches, unauthorized access and attacks on a network  
Enables network virtualisations*

3. How do wireless networks connect devices in a network?

*Answer: Wireless connections allow you to transfer data over a distance without using cables, wires or physical connectors. Most common wireless communication uses radio waves to send data from one point to another. A transmitter on the sending end turns the signal into an electromagnetic radio wave. This wave then moves through the air until it reaches a receiver's antenna. The antenna picks up the radio wave and the receiver turns the electrical signal back into data.*

4. Provide two advantages of using fibre optic cable to connect to a network.

*Answer:  
Fibre optic cables have a much greater bandwidth than metal cables. The amount of information that can be transmitted per unit time of fibre over other transmission media is its most significant advantage.  
An optical fibre offers low power loss, which allows for longer transmission distances. In comparison to copper, in a network, the longest recommended copper distance is 100m while with fibre, it is 2km.  
Fibre optic cables are immune to electromagnetic interference. It can also be run in electrically noisy environments without concern as electrical noise will not affect fibre.  
Fibre optic cables are much thinner and lighter than metal wires. They also occupy less space with cables of the same information capacity. Lighter weight makes fibre easier to install.  
Optical fibres are difficult to tap. As they do not radiate electromagnetic energy, emissions cannot be intercepted. As physically tapping the fibre takes great skill to do undetected, fibre is the most secure medium available for carrying sensitive data.  
An optical fibre has greater tensile strength than copper or steel fibres of the same diameter. It is flexible, bends easily and resists most corrosive elements that attack copper cable.  
The raw materials for glass are plentiful, unlike copper. This means glass can be made more cheaply than copper.*



Use the following checklist as an assessment guideline:

CRITERIA	YES/NO
Did the learner describe the difference between a workstation and server?	
Did the learner mention functions of network software?	
Did the learner describe how devices connect to a wireless network?	
Did the learner mention advantages of using fibre optic cables?	



## Activity 7.2

## Memorandum

Answer the following questions in your own words.

- a. Define an intranet.

*Answer: An intranet is a private, web-based network that is only available to an organisation's staff.*

- b. What are the main differences between an intranet and the internet?

*Answer: Intranets work using internet protocols to share data and information across the network. An intranet is like a private internet. Very often, a company's intranet will have information on it that the company does not want the public to have access to. Intranets act as a website and a communication channel together. Access to an intranet is limited to users who have been given usernames and passwords to connect with it.*

*The internet is a massive network of networks with millions of computers connected to each other across the globe. All of these computers can communicate with each other as long as they are connected. By design, the internet is decentralised, meaning that it is not controlled by a single, central authority. Each computer, or host, is independent and the owner or operator of that host can choose which internet services to use and which local services they will make publicly available. The internet itself is publicly accessible*

- c. What is the main purpose of an extranet?

*Answer: Extranets allow companies to share information securely*

- d. What would you use a VPN for?

*Answer: Any of the following:*

*VPNs can be used to keep browsing data secure.*

*VPNs allow users not connected to the LAN to connect remotely*



## Activity 7.3

## Memorandum

1. Read the following case study and answer the questions that follow.  
Cyber-attacks: Protecting universities and solving cyber security issues  
Oxford, Warwick, and Greenwich Universities are among many of the higher education institutes to have fallen victim to attacks in recent years, with hackers attempting to steal research data and documents. The problem has become acute enough to warrant the publication of cybersecurity guidance for universities and colleges by the UK Government's National Cyber Security Centre (NCSC) recently.  
No organisation today is immune from the threat of cyber-attacks. While we most often hear about breaches suffered by retailers, financial institutions and, since the infamous WannaCry ransomware attack in 2017, healthcare providers, many other types of organisations are becoming appealing targets for cybercriminals.
  - a. Define what a 'hacker' is and distinguish between a 'hacker' and a 'cracker'.  
*Answer:*  
*A hacker refers to someone who can gain unauthorized access to other computers. A hacker can "hack" his or her way through the security levels of a computer system or network.*  
*Crackers, also known as "malicious hackers" and "black-hat hackers", are different because although they have the same skills as a hacker, they use their power to commit criminal acts. For example, crackers can send viruses, steal personal information and commit other crimes using just their skills and a home computer*  
*Learner's own answer.*
  - b. Give THREE ways to secure information on a network.  
*Answer:*  
*Install a firewall to block unauthorized access*  
*Set strong passwords and update them regularly*  
*Maintain anti-virus software*  
*Create A Virtual Private Network (VPN)*
  - c. Why would it be valuable for hackers to steal research data and documents?  
*Answer: Learner's own answer.*
  - d. What is(are) the consequence(s) of being a victim of a ransomware attack?  
*Answer:*  
*Your computer system will be 'locked', inaccessible*  
*You won't have access to your data.*  
*Files are encrypted*  
*Data loss*  
*You need to pay a 'ransom', fee to have access to your computer and data.*

- 1.1** A Private network that is only available to the organisation's employees. (1)  
**A.** Internet  
**B.** WLAN  
**C.** Intranet  
**D.** LAN  
*Answer: C*
- 1.2** A network of computers covering a small area such as a school or office building. (1)  
**A.** WAN  
**B.** LAN  
**C.** GAN  
**D.** PAN  
*Answer: B*
- 1.3** All the computers that are connected to the network. (1)  
**A.** Work stations  
**B.** Servers  
**C.** Input devices  
**D.** Network software  
*Answer: A/B*
- 1.4** A Network that uses radio waves to communicate rather than cable. (1)  
**A.** WAN  
**B.** LAN  
**C.** GAN  
**D.** WLAN  
*Answer: D*
- 1.5** A Computer that provides shared resources, such as files and printers. (1)  
**A.** NIC  
**B.** Server  
**C.** Workstation  
**D.** Network security  
*Answer: B*
- 2.** Choose the answer and write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** If a network is not secured properly, the entire network will be infected should there be one infected computer. (1)  
*Answer: True. ✓✓*
- b.** A PAN (Personal area network) is designed to connect networks across large distances, for instance a province. (1)  
*Answer: False; LAN/WAN. ✓✓*
- c.** In a LAN networks are globally controlled, for easy changes and updates. (1)  
*Answer: False - locally. ✓✓*
- d.** A NIC (Network interface card) allows a computer to communicate with a network (1)  
*Answer: True. ✓✓*
- e.** The main function of a workstation is to serve the information stored on it to the other connected computers. (1)  
*Answer: False - server. ✓✓*
- 3.** Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (8)

COLUMN A	ANSWER
3.1. To make communication possible between the computer and the network.	H NIC
3.2. Data transmission is slower when using this network.	E LAN
3.3. A Server that control all the incoming and outgoing e-mails.	D Email server
3.4. A hardware device used to connect computers in a network.	A Switch I Hub
3.5. Policies that are in place to ensure the security of a network.	C Network security

**4.1** Besides computers, name one other hardware device you might find connected to a network. (1)

*Answer: Possible answers:*

Printers

Scanners

Smartphones

Smart TVs,

IoT devices, etc.

**4.2** Give two reasons why a wireless network (WLAN) is better than a cabled network. (2)

*Answer: Possible answers:*

Easier to setup

Devices connect easier to WLAN

Can be installed/configured in remote areas

**4.3** List two possible disadvantages of using a WLAN. (2)

*Answer: Possible answers:*

May need a specialist to setup

May be expensive

Signal loss

**4.4** Provide two examples of servers that can be used in a network. (2)

*Answer: Possible answers:*

File server

Email server

**4.5** Briefly explain the following communication devices:

**a.** Modem (2)

*Answer: converts analogue signals to digital*

**b.** Router (2)

*Answer: Directs software packets to the intended computer. Also acts as modem (with convergence)*

**5.** Choco's Chocolate Company sells chocolates to distributors as well as directly to the public. The company's head office is in Cape Town with branches in PE, Durban and Johannesburg. Each branch has its own LAN, which communicates with head office.

**5.1** The company uses a LAN in all its branches.

**a.** Briefly explain what a LAN is. (2)

*Answer: A network connecting computers and peripherals over a short distance (locally) such as an office block, etc.*

- b. Give two advantages of using a LAN. (2)

*Answer: possible answers*

*Resource Sharing. Computer hardware resources like printers, modems, DVD-Rom drives and hard disks can be shared with the help of local area networks.*

*Sharing Software Applications*

*Easy to setup and Cheap*

*Centralised Data Data Security*

*Internet Sharing*

- c. Give two disadvantages of using a LAN. (2)

*Answer: possible answers*

*Data security problem: If the server computer is not set up correctly and there is a leak in security then unauthorised users can access the data*

*Limitation of distance: Local area networks are usually made within a building or nearby building and cannot extend to the wider area.*

*Server crashes may affect all computers*

- 5.2 Some of the employees have decided to communicate with their clients using IM. (2)

- a. Explain how IM works. (2)

*Answer:*

*IM offers real-time text transmission over the Internet. A LAN messenger operates in a similar way over a local area network. Short messages are typically transmitted between two parties, when each user chooses to complete a thought and select "send".*

- b. Provide two reasons why the employees should be careful when using IM. (2)

*Answer: Possible answers:*

*Language used*

*Send to correct recipient*

- 5.3 The company uses FTP for the electronic sharing of documents larger than 6 GB. (2)

- a. Why is it a good idea that the company uses FTP? (2)

*Answer: Possible answers:*

*Allows you to transfer multiple files as well as directories*

*The ability to resume a transfer if the connection is lost*

*The ability to add items to a "queue" to be uploaded/downloaded*

*Many FTP clients have the ability to schedule transfers*

*No size limitation on single transfers (browsers only allow up to 2 GB)*

*Many clients have scripting capabilities through command line*

*Most clients have a synchronising utility*

*Faster transfers than HTTP*

- b. Give two disadvantages of using FTP. (2)

*Answer: Possible answers:*

*Usernames, passwords and files are sent in clear text*

*Filtering active FTP connections is difficult on your local machine (passive is preferred)*

*Servers can be spoofed to send data to a random port on an unintended computer*

*Hard to script jobs*

*Easy for inexperienced users to wipe out work*

TOTAL: [40]

# SOCIAL IMPLICATIONS OF NETWORKS



## CHAPTER OVERVIEW

Unit 8.1	Social issues for networks
Unit 8.2	Network security
Unit 8.3	Databases and big data
Unit 8.4	Normal currency vs cryptocurrency



The following learning outcomes are covered by this chapter:

- Define unauthorised access to networks
- Describe the ethical use of networks
- Explain what AUPs (acceptable use policies) in schools are
- Define the social implications for network usage
- Discuss network security and BYOD (bring your own device) environments
- Explain the privacy issues you can encounter on a network
- Discuss personal responsibility in relation to network security
- Define databases and big data
- Explain the differences between normal currency and cryptocurrency

**GRADE:** 11

**DATE:**

**TEACHING TIME:** 8 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader

## INTRODUCTION

We live in a digital world where everything about us, from our holiday pictures to our names and ID numbers, is somewhere on a computer. Companies are storing more of their private information on networks and people are using cloud storage to save more of their personal information online. With the click of a button, you can find out more about strangers on the other side of the world than you ever could before.

This is why network security is more important than ever. In this world, where all the information you need about someone is so easily available, attackers want to get their hands on this information and use it.





## Activity 8.1

## Memorandum

1. How does authentication work?  
*Answer: Authentication works by taking a unique identifier (such as a username or user ID) and matching it against the credentials stored on a database (such as a password).*
2. What is an acceptable use policy?  
*Answer: A contract between the user (learner) and the organisation (school) that outlines what the user can and cannot do on a particular network.*
3. List three elements that must be in an acceptable use policy.  
*Answer: A list of basic netiquette rules, including not sending spam or hoax emails and how users should communicate using email or social media websites.*  
*What may or may not be accessed online using the school's ICT facilities. This could include restricting access to social media websites.*  
*How much information users may download from the internet (for example, no live streaming or downloads larger than a certain file size).*  
*Guidelines on respecting copyright, intellectual property laws and privacy, as well as how to avoid plagiarism.*  
*When and how portable storage devices can be used.*  
*Restrictions on what software can be installed on the school's computing devices.*  
*What to do if users find that they have become the victims of identity theft, cyber-stalking and cyber-bullying, and what to do if their devices become infected with viruses or malware.*  
*Clear descriptions of what will happen to a user who breaks the rules outlined in the AUP.*



## Activity 8.2

## Memorandum

1. What are the main concerns with BYOD policies in the workplace?

*Answer: How to keep the company's private data separate from a user's personal data and how to make sure that an employee does not accidentally share that private data.*

2. How can companies avoid security and usage issues in a BYOD environment?

*Answer: Companies must set up clear acceptable use policies for their staff.*

3. List two tips you should keep in mind when using a network.

*Answer:*

*Make sure that your devices have up-to-date antivirus software installed and that you never click on suspicious links or reply with personal information to suspicious emails.*

*Respect others' privacy and products. Do not download or share content that has been obtained illegally (such as pirated movies or music) or content that violates someone else's copyright.*

*Do not share information taken from hacked sources (such as someone's personal photos or files) and be careful what you share about yourself on the internet.*

*Follow the AUPs of any network you are using.*



## Activity 8.3

## Memorandum

Small group discussions of social implications on:

- Online banking
- Booking reservations
- E-learning
- Video conferencing
- Social websites

*Answer/Notes: Learners' own work.*



## Activity 8.4

## Memorandum

1. What does the term “Big data” mean?

*Answer: Big data is a term that describes the massive amounts of data that are generated every day by every single person.*

2. Distinguish between normal currency and cryptocurrency.

*Answer: Simply put, cryptocurrency is a digital currency that can be bought, sold and traded online using cryptography. Cryptography takes the identifying data of the people buying and selling cryptocurrency and transforms it into something that is not readable unless it is deciphered. Cryptocurrencies are completely digital and have no physical form, unlike the money you get from the bank.*

*Normal currency is also usually backed by something physical that gives it value, like gold, and is usually issued and supported by a country’s central authority or bank (in South Africa, that would be the Reserve Bank and the government).*

- 1.1** Which of the following is not used to authenticate a user? (1)
- A** U sername
  - B** Password
  - C** PIN
  - D** BYOD
- Answer: D*
- 1.2** Which of the following techniques CANNOT be used to authenticate user access to your smartphone? (1)
- A** Fingerprint scanner
  - B** Identity card
  - C** Screen lock pattern
  - D** PIN
- Answer: B*
- 1.3** Which of the following scenarios will need an AUP? (1)
- A** A person wants to sell goods online.
  - B** A person wants to open an Internet Café.
  - C** A person buys car insurance.
  - D** A person browses an online website.
- Answer: B*
- 1.4** What does BYOD mean? (1)
- A** Bring your own device
  - B** Buy your online device
  - C** Bring your device
  - D** Bypass online detection
- Answer: A*
- 1.5** What is the purpose of a firewall? (1)
- A** It removes malware from your computer.
  - B** It uninstalls programs from your computer.
  - C** It updates your computer's software.
  - D** It prevents outside devices or programs from accessing your network.
- Answer: D*
- 2.** Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** Authentication is the process of working out whether something or someone is, in fact, what or who they claim to be (1)  
*Answer: True ✓*
  - b.** Using a network in an unethical manner can improve the reputation of an institution. (1)  
*Answer: False. Using a network in an ethical manner can improve the reputation of an institution. ✓*
  - c.** On a network you must protect the privacy of others and yourself. (1)  
*Answer: True ✓*
  - d.** Unauthorised access on a network is when someone legally gains access with another user's password. (1)  
*Answer: False. Unauthorised access on a network is when someone illegally gains access with another user's credentials. ✓*
  - e.** There are two main types of unauthorised access are internal and external threats. (1)  
*Answer: True. ✓*
- 3.** Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (10)

COLUMN A	ANSWER
3.1. Encrypting people's personal information so as to ensure that it stays safe and secure.	F Confidentiality
3.2. Controlling user access by making sure that data stored online can only be viewed by those who have the correct permissions to view it.	B Privacy issue
3.3. Ensuring that users are able to have constant access to their online data.	D Availability
3.4. A digital currency that can be bought, sold and traded online using cryptography.	H Cryptocurrency
3.5. Matching the password that a person provides with the credentials stored on a database to prevent the unauthorised access of data and information.	G Authentication

4.1 Name THREE types of institutions that would benefit from AUPs. (3)

*Answer: Some possible examples:*

- Schools ✓
- Universities ✓
- Orphanages ✓
- Charity organisations ✓
- Business companies ✓
- Colleges ✓
- Hospitals ✓

4.2 List THREE AUP guidelines that should be used by schools. (3)

*Answer: Any four of the following:*

- A list of basic netiquette rules. ✓
- What may or may not be accessed online when using the school's ICT facilities. ✓
- How much information users may download from the Internet. ✓
- Guidelines on respecting copyright ✓, intellectual property laws ✓ and privacy. ✓
- Guidelines on how to avoid plagiarism. ✓
- When and how portable storage devices can be used. ✓
- Restrictions on what software can be installed on the school's computing devices. ✓
- What to do if users find that they have become the victims of identity theft, cyber-stalking and cyber-bullying. ✓
- What to do if users' devices become infected with viruses or malware. ✓
- Clear descriptions of what will happen to a user who breaks the rules outlined in the AUP. ✓
- Each school will have its own AUP depending on the computing devices, services and access they provide. ✓

4.3 Name THREE advantages of cryptocurrencies over normal currencies. (3)

*Answer: Possible answers:*

- It is not backed by a single country's central authority (its global). ✓
- Its value is not tied to anything physical (its decentralised). ✓
- It can be converted to a normal currency. ✓

5. Stacy has recently had a friend of hers install a network in her house. Since she has a 4-year old daughter and a 14-year old son who will eventually have access to this network, she needs to figure out what safety precautions she must implement.

5.1 What type of network should Stacy install? Give a reason for your answer. (2)

*Answer: Some possible answers:*

- HAN: ✓ Because she only needs a network range that can cover home ✓ OR because her family will be able to access the network easier. ✓
- PAN: ✓ Because this can be used for just her personal devices. ✓

- 5.2** What THREE things can Stacy do to keep her network secure? (3)  
*Answer: Some possible answers:*  
 Ensure security software is installed on all their devices. ✓  
 Make sure all her family's devices have an up-to-date firewall. ✓  
 Make sure that all their antiviruses are updated. ✓  
 Make sure that her network has a password. ✓
- 5.3** What TWO things can Stacy do to control what her children can access on their home's network? (2)  
*Answer: Some possible answers:*  
 She can install a child lock app, on her children's computing devices or web browsers, that restricts what types of websites her children can visit. ✓  
 She can physically supervise them whenever they use the internet ✓  
 She can use mobile device management software. ✓
- 5.4** Stacy's son has created a Facebook account. What THREE safety tips can Stacy give him regarding his use of this online platform. (3)  
*Answer: Some possible answers:*  
 Do not share personal information on Facebook. ✓  
 Create a strong password for your Facebook account. ✓  
 Change your Facebook password every couple of months. ✓  
 Do not 'friend' people you do not know. ✓  
 Do not try to hack other people's Facebook accounts. ✓
- 5.5** Stacy's son comes to her and tells her that he thinks that someone has hacked into his Facebook account. What THREE things should they do? (3)  
*Answer: Some possible answers:*  
 Report the problem to the Facebook administrators. ✓  
 Change his Facebook account's password. ✓  
 Use his accounts' security and login page to see where he has been logged in with his Facebook credentials. ✓  
 Log out of any other accounts that use his Facebook credentials. ✓
- 5.6** Give three guidelines that Stacy can use when choosing a password that will be difficult to crack. (3)  
*Answer: Some possible answers:*  
 Not to include personal data such as DOB, ID number, etc.  
 Longer than 8 characters  
 Alpha-numeric characters  
 Changed often

TOTAL: [40]

# ERRORS AND BUGS

## CHAPTER OVERVIEW

Unit 9.1 Computer and human error

Unit 9.2 Data types

Unit 9.3 Software bugs

Unit 9.4 Hardware bugs

The following learning outcomes are covered by this chapter: 

- Discuss the effects of computer and human error on data accuracy
- Describe the GIGO (garbage in, garbage out) principle
- Explain the different data types
- Describe databases
- Describe how data is verified and validated
- Explain what software bugs are
- Define hardware bugs

GRADE: 11

DATE:

TEACHING TIME: 8 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader

### Vocabulary

These words and phrases appear in the text.

- **Transcription errors:** This happens when information is not correctly input.
- **Transposition errors:** This happens when information is input in the wrong order.
- **Boolean:** A computing variable that can have only one of two possible outcomes, i.e. True (0) or False (1).
- **Data verification:** The process of checking that data input by a user is correct.
- **Data validation:** The process of checking that data that has been transferred from one source to another matches the original data.



## INTRODUCTION

There are two major factors that can lead to a computer giving you the incorrect results when you enter data, namely human error and bugs. In this chapter, learners will learn about the effect that human error has on data input and the accuracy of data, how data is verified and validated, and what software bugs and hardware failure are and how they can affect your computer.

- 1.1** Before you analyse data, you must do the following: \_\_\_\_\_. (1)
- A.** Spell check it
  - B.** Review it
  - C.** Verify and validate it
  - D.** Organise and simplify it
- Answer: C/D*
- 1.2** Information that is incorrectly entered is referred to as which of the following? (1)
- A.** Human error
  - B.** Transcription error
  - C.** Transposition error
  - D.** Troubleshooting error
- Answer: B*
- 1.3** Which of the following is an example of a transposition error? (1)
- A.** Accidentally deleting an entry
  - B.** Repeating an entry
  - C.** Making a typo
  - D.** Swapping two entries around
- Answer: D*
- 1.4** Which of the following is NOT a data type? (1)
- A.** Numbers
  - B.** Strings
  - C.** Dates and times
  - D.** Characters
- Answer: D*
- 1.5** What does GIGO stand for? (1)
- A.** Generated Input Generated Output
  - B.** Good Input Garbage Output
  - C.** Good Input Generates Output
  - D.** Garbage In Garbage Out
- Answer: D*
- 2.** Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** When we enter data into a computer, the errors that occur are usually computer based. (1)  
*Answer: False. When we enter data into a computer that errors that occur are usually human based. ✓*
  - b.** Transcription errors are most common with text-based data (1)  
*Answer: True ✓*
  - c.** Human errors negatively impact the validity and accuracy of data. (1)  
*Answer: True ✓*
  - d.** Entering data correctly leads to incorrect results. (1)  
*Answer: False. Entering data incorrectly leads to incorrect results. ✓*
  - e.** Binary code is similar to date and time data. (1)  
*Answer: False. Binary code is similar to Boolean data. ✓*

3. Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (10)

COLUMN A	ANSWER
3.1. A process that is mainly used to check data that is entered into a system manually.	A Data validation
3.2. A file that can be used to make calculations on numerical data	F Spreadsheet
3.3. Basic text that is made up of a combination of characters, letters and numbers.	C String data
3.4. Data that represents a count or measurements that can be used in mathematical calculations.	D Numeric data
3.5. Data can only have one of two possible values.	B Boolean data

- 4.1 Which data validation technique can be used to validate the data in the following scenarios? (10)

SCENARIO	DATA VALIDATION TECHNIQUE (ANSWER)
1. An antivirus wants to confirm if its product key follows a specific pattern, before checking if it is correct.	Format check ✓
2. Checking the correctness of the numbers in a Fibonacci sequence.	Check digit ✓
3. When you want to check if a person has provided both a username and a password on a login screen.	Presence check ✓
4. When you want to check that the required fields on a form are completed.	Presence check ✓
5. On a questionnaire you want people to only provide 'Yes' or 'No' answers.	Format check ✓
6. When you want to make sure that only users between 18 and 25 can open a College bank account.	Range check ✓
7. When a bank wants to make sure that the user interface of an ATM makes it obvious where a PIN number and deposit amount must be entered.	Lookup table ✓

- 4.2 Define a software bug. (2)  
*Answer: A software bug is any error, flaw, failure or fault in a computer program or system that causes it to produce an incorrect or unexpected result or to behave in a way that it was not intended to.*
- 4.3 Define a hardware bug. (2)  
*Answer: Hardware bug is a defect in the design, manufacture, or operation of computer hardware that causes incorrect operation*

4.4 Determine if the following errors are caused by software bugs or hardware bugs. (5)

ERROR DESCRIPTION	TYPE OF BUG (ANSWER)
a. When Roberta plays her favourite role-playing game on her computer, her computer starts to freeze during the game's cut scenes.	Software bug ✓
b. Nomonde's Windows computer is stuck at the Blue Screen of Death and is preventing her from logging into her computer.	Software bug ✓
c. Nothing happens when Prakash presses the 'P' key on his keyboard nothing happens. But every other key on his keyboard still works properly.	Hardware bug ✓
d. Shou's laptop heats up very quickly, and only stays on for an hour even when it's plugged into a power source.	Hardware bug ✓

5.1. What is the main difference between data verification and data validation? (2)

*Answer: Data verification checks if the data is being entered correctly. ✓ While data validation checks if the data that was entered makes sense. ✓*

5.2. How can you automate the data verification process on a spreadsheet? (4)

*Answer: Set up rules ✓ of what type of data ✓ can be accepted or used ✓ in which cells. ✓*

5.3. Describe the two types of data entry errors and give an example of each (2)

*Answer: Use the following as an assessment guideline:*

*Transcription error: a specific type of data entry error that is commonly made by human operators or by optical character recognition programs*

*Transposition error: This type of mistake occurs when information is input in the wrong order and tends to happen when people type numbers rather than words.*

5.4. Maryn's mouse cannot be detected by her computer when she plugs it in. Mention TWO things she can do to try and solve this hardware bug? (2)

*Answer: Use the following as an assessment guideline:*

*Some possible answers:*

*Reinstall the mouse's device drivers. ✓*

*Go online and see if the manufacturer has provided a security fix that can be downloaded to fix it. ✓*

TOTAL: [40]

# SOCIAL ISSUES AND ONLINE PROTECTION



## CHAPTER OVERVIEW

Unit 10.1	Storage devices
Unit 10.2	Processing devices
Unit 10.3	Basic troubleshooting
Unit 10.4	Basic troubleshooting
Unit 10.5	Basic troubleshooting
Unit 10.6	Basic troubleshooting



The following learning outcomes are covered by this chapter:

- Identify different social engineering tricks
- Describe why data backup is important
- Backup data correctly
- Discuss how to avoid online harassment and what to do if you become a target of online harassment
- Describe what malware is and how to avoid it
- Explain multi-step verification
- Describe how antivirus and antimalware programs work

GRADE: 11

DATE:

TEACHING TIME: 4 hours

Resources	Each learner should have access to: <ul style="list-style-type: none"> <li>• CAT 11 textbook</li> <li>• Workbook</li> <li>• QR reader</li> </ul>
Vocabulary	These words, phrases and abbreviations appear in the text. <ul style="list-style-type: none"> <li>• <b>Phishing:</b> A scam where an internet user is tricked, using a deceptive email, into giving up personal or confidential information.</li> <li>• <b>Email spoofing:</b> The act of forging an email header so that the message appears to have originated from someone or somewhere other than the actual source.</li> </ul>

## Vocabulary

These words, phrases and abbreviations appear in the text.

- **Website spoofing:** The act of creating a website as a hoax to mislead readers that the website has been created by a different person or organisation.
- **Pretexting:** A scam where the scammer pretends to need information in order to confirm the identity of the person they are talking to.
- **Baiting:** Using a false promise to catch a victim's attention, greed or curiosity and lure them into giving up personal information or infect their system with malware.
- **Quid Pro Quo:** The promise of something, usually a thing or a benefit, in exchange for information.
- **Tailgating/piggybacking:** When an attacker walks into an access-controlled environment by following a person with legitimate access.
- **Social engineering:** The act of tricking people into revealing sensitive information, like passwords or credit card information without using technology to do so.
- **Embedded links:** A link (or piece of media) placed inside a web page instead of linking back to the original source.
- **Doxing:** Searching for and publishing private or identifying information about a person on the Internet, usually with malicious intentions.
- **Swatting:** The act of making a fake call to the emergency services (like the police) in an attempt to have a large amount of armed police officers arrive at an address. Usually works with doxing.
- **Prevalence:** The state of happening, being accepted, or being practiced often or over a wide area.
- **Distributed denial of service attacks (DDoS):** Overwhelming a website or online service with more traffic than the server can accommodate, making the website or service inoperable.
- **Defamation:** The act of saying false things in order to make people have a bad opinion of someone or something
- **Secure Sockets Layer (SSL):** A standard security technology that aims to establish an encrypted link between a server and a client.



## Activity 10.1

## Memorandum

1. Read through the following case study.  
Kevin Mitnick is known as the world's most famous hacker. He was one of the first computer hackers that was prosecuted and labelled a computer terrorist, after leading the FBI on a three-year manhunt for breaking into computer networks and stealing software from Sun, Novell and Motorola.  
He started hacking when he was only 16 or 17 years old and later became known more for his use of social engineering to get access into networks than actually hacking them. For example, he called an employee of Motorola and convinced her to send him the code for one of the Motorola cell phones. With this, he was able to use an elaborate social-engineering scheme by manipulating the telephone network and set up call-back numbers within Motorola's campus. He even convinced a manager in operations to tell one of the employees to read off his SecurID code any time he needed it, so that he could access the network remotely. He also managed to hack into their development servers for cell phones and find the source code to all the different cell phones.  
When he was eventually arrested in 1995, he was held for four and a half years without a trial. In the end, he signed a deal and admitted to causing between \$5 million and \$10 million loss, although he kept saying that the purpose of his hacking was never for personal gain – he did it for the fun of being able to do it.  
After he was released in 2002, he became a security consultant who is now doing exactly what he did as a hacker, i.e. breaking into computer and network systems, but with the company's knowledge and authorisation
2. Refer learners to the QR code in the Theory book and ask them to scan the QR code to watch an interview with Kevin Mitnick.
3.
  - a. What is social engineering?  
*Answer: Social engineering is a technique used to gain access to facility's systems, data and anything else by exploiting basic human psychology. People are taught to be helpful and social engineers manipulate these human emotions by using a variety of social engineering tricks.*
  - b. Discuss four of the types of social engineering techniques.
    - i. What is it?
    - ii. How is it used?
    - iii. Have you or anyone you know been targeted by social engineering tricks? What happened?
    - iv. What can you do to prevent becoming a victim?  
*Answer: Types of social engineering techniques:*  
*Phishing is usually done via email where an attacker tricks people into giving out personal information or handing over money. Phishing is used with email spoofing and website spoofing. The most common phishing scam is an email from your bank to say your account has been suspended and that you need to reset the password by clicking on a link that takes you to a website that looks like your bank's website. When you enter your account details, the attacker will have your details.*  
*Pretexting is the art of lying to get sensitive data. This can be done in person or over the phone (for example, calling a business claiming to be an IT technician until they find someone who was waiting for call back and getting them to share password information).*  
*Baiting is when the attacker offers something someone wants, like a free music download, a specific product or money. The attacker tricks users into giving away login data to particular websites. Baiting is a type of phishing attack, but it is not usually done through email.*  
*Quid Pro Quo, meaning 'something for something' in Latin, is the promise of something, usually a thing or a benefit, in exchange for information. This is usually usernames and passwords, but it can be personally identifying information or the layouts of a physical location or network. The thing can be big (like a money reward) or small (research done have shown people are willing to give up information for a chocolate bar or cheap pen).*  
*Tailgating is also known as piggybacking. It happens when an attacker walks into an access-controlled environment by following a person with legitimate access. This can be done by the attacker simply following an employee in when they scan their access cards or carrying a heavy box*

or tray of food and going to a back entrance where employees gather. People will often hold open the door because they want to be helpful.

*Possible preventative measures against social engineering attacks:*

*Make sure that you stay educated by researching facts on how to identify and ward off online criminals.*

*Do not trust phone calls or emails from people that you do not know. Verify the source of the email before you give them any information.*

*When you get an email that you are not sure of, pay close attention to the fine details in the email and message. Never let the urgency of the message press you into reacting to anything.*

*Do not click on any embedded links in an email from a person or company you do not know anything about. Use your search engine to search for the suggested website or enter the URL manually to see where it leads you to.*

*Always pay attention to the URL of a website. Cybercriminals often make very small changes to direct traffic to their own spoofed sites.*

*Do not download any attachments from an unknown sender.*

*Never send sensitive information over the internet before checking the website's security.*

*Keep your software up to date. Make sure that you have a strong firewall, an up-to-date antivirus program and that your spam filters are set to high.*

*Do not accept any requests for online tech support from someone you do not know.*

*When asked for information, make sure that the person asking the question deserves to know the information as people use other's instinct to be helpful to obtain personal information. For example, no one really needs to know what version of an operating system you are running. Also, be on the alert if the person asks a question that does not fit with what they pretend to be or if an urgency suddenly creeps into the conversation.*

*Do not be greedy on the Web. If you never participated in a lottery, why would you suddenly win a large amount of money? And if you do not know anyone in Kenya, why would you suddenly get an inheritance?*

*Use the following checklist as an assessment guideline:*

CRITERIA	YES/NO
Did the learner mention four types of social engineering techniques?	
Did the learner mention what each type of social engineering technique is?	
Did the learner describe how each type of social engineering technique is used?	
If the learner was the victim or knew someone else who was the victim of an engineering attack, did they describe what happened?	
Did the learner mention at least five preventative measures they can take against social engineering attacks?	





## Activity 10.2

## Memorandum

Answer the following in your own words.

1. Is it really necessary to back up the content of your computer? Why or why not?

*Answer: Yes, because hardware can fail, or accounts can be compromised. Backing up data lets you protect and store information.*

2. Talk to at least two people you know who have their own computers.

- Find out if they back up their information? Why or why not?
- What do they back up?
- How many times do they back up their information?
- How do they back up their information?

*Answer: Learner's own answer based on research.*

*Use the following checklist as an assessment guideline:*

CRITERIA	YES/NO
Did the learner interview at least two learners about their information back up practices?	
Did the learner ask the learners they interviewed about the reasoning behind their answers?	
Did the learner ask the learners they interviewed about what type of information they backed up?	
Did the learner ask the learners they interviewed about how many times they backed up their information?	
Did the learner ask the learners they interviewed about how they backed up their information?	

3. What would be a practical and workable solution for you to back up your information?

*Answer: Learner's own answer.*

*The learner must at least mention the following:*

*How regularly they would back up their data.*

*The type of information they would back up*

*What they would use to back up their data.*



## Activity 10.3

## Memorandum

1. Read the following case study and answer the questions that follow.

Thando is a young woman who has always had weight and confidence issues. After deciding on improving herself she went on an exercise and diet regime. Her friends got her to take new photos of herself to show the world her new-found body and confidence. Thando decided to share her progress and photos with her friends and family. When she uploaded her new photos on Facebook a lot of people liked her photos. Unfortunately, one of the people that saw her photos started to post horrible comments about how she looks and her personal character.

When Thando's sister saw these horrible comments, she became worried that these comments would affect her sister's new-found confidence and both her mental and physical health. She then decided to talk to Thando about possible solutions to the problem. Both Thando and her sister eventually reported the person to Facebook and asked that Facebook remove that user's offensive comments and block that user's account.

- a. Have you experienced some kind of cyberbullying or harassment, or do you know of someone who experienced it? Tell the story.

*Answer: Learner's own answer.*

- b. Is it a problem in South Africa, or is it becoming a problem? Why do you say so?

*Answer: Learner's own answer.*

*Use the following as an assessment guideline:*

*Yes, because more and more young people are gaining access to the Internet through smartphones and are using social media to communicate with their peers and strangers.*

- c. What can you as a young person do to prevent this from becoming a problem?

*Answer: You can do the following:*

*Limit the personal data you share on social media accounts and review your security or privacy settings regularly. Do not post your physical address, mobile number or email address (or make them publicly available as part of your profile).*

*Google yourself, make sure that friends and family are not posting things about you that you do not want others to see or know. Let friends and family know what you are comfortable with them posting and what you are not comfortable with.*

*Choose your passwords wisely, make them unique and strong. Change passwords regularly and do not use the same password for different sites. Make sure that the answers to your secret questions are hard to guess.*

*Do not share too much information over phone calls, emails or texts that ask for personal information, especially your ID number or banking information.*

- d. What can you do if you learn that someone is being bullied?

*Answer: Advise that person to report the bullying to the website and ask that website to take down the harassing content. You can also inform them about Childline South Africa.*

- e. What must you do if you become the target of cyberbullying and harassment?

*Answer: Make a copy of everything. Take screenshots of the harassment and print them out. Keep a record of what websites the harassment happened on. Have your parents have a look at the posts.*

*Report the bullying to the website and ask that they take the harassing content down. If necessary, take the evidence you have collected to the police to open a case.*

*If you are bullied or harassed, you can call Childline South Africa on 0800 055 555.*

2. Is there something that you can do to stop cyberbullying at school? Come up with a school project.

*Answer: Learner's own answer. The learner's answer must be realistic and beneficial.*



## Activity 10.4

## Memorandum

1. What exactly does e-commerce mean?

*Answer:* Electronic commerce: This is when people do commercial transactions (such as shopping) online.

2. What are the advantages of e-commerce?

*Answer:* They are as follows:

*There is a very wide range of products and services available to you.*

*There are no geographical limitations. It is just as easy to buy something from the USA or Europe, as buying it in South Africa.*

*It is very convenient as you do not have to go to the shops, walk around from shop to shop or stand in queues to pay. You can do everything from inside your own home.*

*It can be cheaper as the man in the middle (shop owner) is cut out. Some of the products, such as e-books and music can even be delivered through the internet, making it a cheaper option.*

*It definitely saves you time, i.e. travel time, waiting time and searching time.*

*It is open 24/7. So, you can shop whenever you have the time.*

*Online buying also allows you to do your homework better before buying something. The internet allows you to search for product information, to compare prices and benefits and to evaluate its quality before buying it. You can also easily contact the business if you have any problems with the product.*

3. What are the risks to e-commerce?

*Answer:* They are as follows:

*Fraud. Because transactional data is transmitted over the internet, it has become one of the target areas of cybercriminals. Financial information can be hacked or stolen, leading to purchases made by people other than the rightful owners of that information. Customers sometimes complain that they have not received their packages and it is difficult to determine whether that is true or not.*

*Online security. There are many security threats such as malware, spam mail, phishing, etc. that can cause you harm.*

*Privacy. Your personal data can be compromised and sold for unsolicited marketing or identity theft.*

*Handling customer disputes about not receiving their order, their credit card being charged twice, or the product received did not fit the online description, can be difficult.*

*Data alteration. The content of a transaction can be intercepted and changed, either maliciously or accidentally.*

4. What can you do to make sure that you are safe when shopping online?

*Answer:* They are as follows:

*Use a proper antivirus software and making sure it is up to date.*

*Do not log in to online banking or shopping sites using public Wi-Fi or on public computers (like those in an internet cafe).*

*Make sure that all your devices' operating systems are up to date. This is important for both your phone and computer. Make sure your banking app on your phone is also up to date.*

*Change your passwords regularly and make sure they are strong.*

*Do not sign into your banking account through a link in an email as this is most likely a phishing attack.*

*Check your account activity regularly.*

*Sign up for SMS or email notifications on your bank account for when money comes in or goes out and when your account is accessed online.*



## Activity 10.5

## Memorandum

1. Give TWO examples of ways to avoid online harassment.

*Answer: Any two of the following:*

*Limit the personal data you share on social media accounts and review your security or privacy settings regularly. Do not post your physical address, mobile number or email address (or make them publicly available as part of your profile).*

*Google yourself, make sure that friends and family are not posting things about you that you do not want others to see or know. Let friends and family know what you are comfortable with them posting and what you are not comfortable with.*

*Choose your passwords wisely, make them unique and strong. Change passwords regularly and do not use the same password for different sites. Make sure that the answers to your secret questions are hard to guess.*

*Do not share too much information over phone calls, emails or texts that ask for personal information, especially your ID number or banking information.*
2. What is malware?

*Answer: Malware is any software that is specifically designed to disrupt, damage or gain authorised access to a computer.*
3. How do you avoid getting a malware infection?

*Answer: Do the following:*

*Do not open suspicious emails.*

*Do not download suspicious programs or attachments.*

*Keep your antivirus application up to date.*

*Keep your other software up to date.*
4. What is multi-step verification?

*Answer: Two-factor authentication, or multi-step verification, prevents anyone from logging into your accounts using just your username and password. Instead, they need a second factor (which is usually a physical device such as your phone) to access your account. This means that your account can only be hacked by the small number of people with access to your phone.*
5. Give FIVE tips for safe online banking.

*Answer: Any five of the following:*

*Using proper antivirus software and making sure it is up to date.*

*Do not log in to online banking or shopping sites using public Wi-Fi or on public computers (like those in an internet cafe).*

*Make sure that all your devices' operating systems are up to date. This is important for both your phone and computer. Make sure your banking app on your phone is also up to date.*

*Change your passwords regularly and make sure they are strong.*

*Do not sign into your banking account through a link in an email as this is most likely a phishing attack.*

*Check your account activity regularly.*

*Sign up for SMS or email notifications on your bank account for when money comes in or goes out and when your account is accessed online.*
6. What does the 's' in https mean?

*Answer: The 's' stands for secure.*
7. Briefly describe three common types of virus detection in antivirus programs.

*Answer: They are as follows:*

*Heuristic-based detection compares signatures of known viruses against a potential threat using an algorithm. This type of detection allows an antivirus program to detect new viruses or viruses that have been modified. It can cause false positives and state that a file is corrupted when it is not.*

*Signature-based or dictionary detection uses a definition file, database or dictionary that contains many thousands of known virus signatures. They compare the activity of a suspicious file to this bank of knowledge*

*and warn the user. This type of detection does not create false positives, but it cannot detect new viruses until their signatures are loaded onto the database.*

*Behaviour-based detection is where the antivirus program monitors the behaviour of programs on a computer. When a program begins behaving oddly, the antivirus program may trigger a warning. These types of programs are useful for detecting malware that tries to steal login information by tracking your actions on a computer (for example, using keyloggers to record what you type).*

- 1.1** Which of the following is NOT an example of social engineering? (1)
- A.** Phishing
  - B.** Malware
  - C.** Tailgating
  - D.** Pretexting
- Answer: B ✓*
- 1.2** If you come across fake news what should you do? (1)
- A.** Post it and share it
  - B.** Do more research on it
  - C.** Delete it from the Internet
  - D.** Edit and try to fix it
- Answer: B ✓*
- 1.3** Which of the following institutions is used in phishing scams the most? (1)
- A.** Banks
  - B.** Universities
  - C.** Kindergartens
  - D.** Online Shops
- Answer: A ✓*
- 1.4** Which of the following scenarios do NOT use online banking? (1)
- A.** Ahmed owns an electronics store and does have a card swipe machine.
  - B.** Chloe does not have a physical clothing store, but she sells clothing through an online website.
  - C.** Blessing only likes shopping for games online.
  - D.** Hanno wants to send money to his mother overseas.
- Answer: All of them do ✓*
- 1.5** Which of the following is NOT an antivirus program/application? (1)
- A.** Avast
  - B.** Norton
  - C.** Bitdefender
  - D.** OneDrive
- Answer: D ✓*
- 2.** Write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** Multi-step verification can be used to keep your email password secure. (1)  
*Answer: True. ✓*
  - b.** A disadvantage of e-commerce is that it is hard to send physical money online. (1)  
*Answer: False. A disadvantage of online banking is that it is hard to send physical money online. ✓*
  - c.** Emails from an unknown source are known suspicious emails. (1)  
*Answer: True. ✓*
  - d.** If you want to prevent people from accessing your online accounts, you must use a strong password. (1)  
*Answer: True. ✓*
  - e.** Hackers use Quid Pro Quo to steal passwords. (1)  
*Answer: False. Hackers use Quid Pro Quo to steal information. ✓*

3. Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (10)

COLUMN A	ANSWER
3.1. Done via email where an attacker tricks people into giving out personal information or handing over money.	C Phishing
3.2. The art of lying to get sensitive data. This can be done in person or over the phone.	B Quid Pro Quo
3.3. When the attacker offers something that someone wants and tricks the user into giving away login data to particular websites.	F Baiting
3.4. The promise of something, usually a thing or a benefit, in exchange for information.	B Quid Pro Quo
3.5. When an attacker walks into an access-controlled environment by following a person with legitimate access.	H Tailgating

- 4.1 Briefly explain how to recover data from a backup? (4)

*Answer:* To recover the files from a backup, simply connect the backup hard drive to your computer ✓ and copy the damaged or missing data [1] back onto your storage device. ✓

- 4.2 What are THREE disadvantages of using an external hard drive to back up your computer's data? (3)

*Answer:* Use the following as an assessment guideline:

*Possible answers:*

*The external hard drive could fail or stop working. ✓*

*It can get lost due to theft, flood, fire, etc. ✓*

*If it gets damaged, you could lose all your data. ✓*

- 4.3 What is preferable alternative to physical computer backups? (1)

*Answer:* Cloud storage. ✓

- a. Explain what this alternative backup does. (3)

*Answer:* Cloud storage puts your information on an off-site server ✓ that never goes offline ✓ and that can be accessed from anywhere through the internet. ✓

- b. Who would benefit most from this type of alternative backup? Mention THREE of them. (3)

*Answer:* Some possible answers:

*Big businesses ✓*

*Universities ✓*

*Banks ✓*

*Professional graphic designer ✓*

*Government institutions ✓*

- c. What THREE things can you do to prevent your computer from getting infected by malware? (3)

*Answer:* You can do the following:

*Do not open suspicious emails. ✓*

*Do not download suspicious programs or attachments. ✓*

*Keep your antivirus application up to date. ✓*

*Keep your other software up to date. ✓*

- 4.4 What is the difference between e-commerce and e-banking? (4)

*Answer:* E-commerce is when you use online services such as online shopping websites to purchase goods and services online. ✓ While e-banking is an online banking platform that allows you to do banking transactions ✓ and payments online ✓ and allows you to access banking services. ✓

- 4.5** List TWO risks of online banking. (2)  
*Answer: Any two of the following:*  
*No relationship with a personal banker. ✓*  
*Online theft of your access ID/user ID or PIN/password. ✓*  
*Unauthorised taking out of your funds from your account. ✓*  
*Banking apps can be compromised. ✓*  
*Technological issues. An online bank is only as good as its internet. If the internet goes down, there is nothing you can do until it goes up again. ✓*  
*Security issues. ✓*  
*Inconvenient to make deposits. ✓*
- 4.6** Explain the concept of cloud storage. (2)  
*Answer:*  
*Cloud storage refers to online space that you use to store your data, photos, music, and videos for access from any of your devices.*
- 4.7** Provide two examples of cloud storage providers. (2)  
*Answer:*  
*Google Drive*  
*OneDrive*  
*DropBox*

TOTAL: [40]



# INTERNET AND THE WORLD WIDE WEB



## CHAPTER OVERVIEW

Unit 11.1 Internet communication

Unit 11.2 Online transactions

Unit 11.3 The Internet of Things

Unit 11.4 Fourth Industrial Revolution (4IR)

Unit 11.5 Social media

Unit 11.6 Internet access

Unit 11.7 Browser and email software

Unit 11.8 The usability of websites



The following learning outcomes are covered by this chapter:

- Describe and discuss what VoIP (Voice over Internet Protocol) and video conferencing are
- Discuss the advantages and disadvantages of VoIP and video conferencing
- Describe the different types of transactions you can perform online
- Define the IoT (Internet of Things)
- Explain the advantages and disadvantages of social media
- Discuss good and bad practices on social media platforms
- Describe the limitations of fixed internet access
- Discuss mobile internet access in relation to Wi-Fi hotspots, WiMAX, Bluetooth and mobile internet
- Differentiate between different email applications
- Describe the key factors that define the usability of websites and how websites link to word processing and forms

GRADE: 11

DATE:

TEACHING TIME: 6 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader

## INTRODUCTION

The internet has changed the way we communicate with each other and the way we interact with the world. More people are making calls and reading their news online than ever before and the number keeps on growing.

In this chapter, learners will learn about various forms of online communication, how the internet can be used for transactions such as banking, shopping and make bookings, and what the Internet of Things (IoT) is. They will also look at the advantages, disadvantages and best practices of social media and the different forms of internet access that are available. In the final two units, they will look at browser and email software, as well as what key factors make a website user-friendly.



## Activity 11.1

## Memorandum

1. Compare VoIP and video conferencing. Tabulate the information.
  - a. What is each of the above?
 

*Answer: VoIP stands for Voice over Internet Protocol, which is basically a fancy way to say making a telephone call using the internet.*

*Video conferencing is linked to VoIP and is often offered as part of a VoIP contract. Video conferencing works by using an online platform to make or receive video calls.*
  - b. What is each one used for (main function)?
 

*Answer: You can use VoIP to make calls to landlines, cellular phones and even other computers.*

*Much like how VoIP works, video conferencing platforms convert analogue video signal to data packets and output them on the receiving end as a video.*
  - c. What are the main advantages of each?
 

*Answer: Advantages of VoIP:*

*The cost for using VoIP services is lower than using telephone services since you will only need to pay one bill to the service provider at the end of the month. The set-up costs are also lower.*

*VoIP has all the same features as normal telephone networks, but also includes features like call forwarding, call waiting, voicemail, 3-way calling and more. While some telephone networks for business have these features as well, they are usually extras that you need to pay for.*

*VoIP is more flexible. The amount of connections you can have is limited by the speed of your Internet connection, not the amount of physical phone lines you are allowed to have.*

*VoIP services can be accessed by staff anywhere they need it and they can be centrally controlled (for example, the VoIP lines for the Johannesburg branch can be controlled from and connected to the server at head office in Cape Town).*

*Advantages of video conferencing:*

*Reduced travel costs, as business can have meetings with people anywhere in the world via their internet connection.*

*Screen and file sharing allow the people in the call to see what other people are doing and working on, which is good for collaboration.*

*Video conferencing is a visual communication medium, so you can see the facial expressions and body language of the people you are talking to. This prevents miscommunication.*

*Video conferencing is also more flexible as a meeting option as attendance is only limited by access to an internet connection. This means that staff at remote locations can also attend the meetings.*
  - d. What are the main disadvantages of each?
 

*Answer: Disadvantages of VoIP:*

*VoIP relies on your having a stable Internet connection that can handle the additional data that is being sent. If your Internet connection cannot handle this, the quality of your calls will suffer.*

*In the case of a power outage, you will not have telephone service because your connection to the Internet has been broken.*

*There are also security concerns around VoIP calls. The data packets themselves can be intercepted and tampered with, users are vulnerable to identity theft as well when using online VoIP services.*

*Disadvantages of FTP:*

*Bad internet connections can cause lag or make audio and video unclear.*

*Clarity can become an issue when two or more people speak at once.*

*Technology can fail during the call, for example the internet connection getting lost or the app crashing.*

*This takes time away from the reason for the call.*

*Bad video or audio quality can make a video call very frustrating.*

e. Give an example of each.

*Answer: Possible examples:*

*VoIP: RingCentral or Skype for Business*

*Video conferencing: Skype*

2. What is the difference between VoIP and video conferencing?

*Answer: VoIP makes calls to landlines, cellular phones and even other computers. You can use physical handsets (that have been connected to a VoIP service) or software.*

*Video conferencing is linked to VoIP and is often offered as part of a VoIP contract. Video conferencing works by using an online platform to make or receive video calls.*



## Activity 11.2

## Memorandum

1. Why would a person use online banking for EFTs?  
*Answer: EFTs allow you to log into banking website (or smartphone app) and send money from your account to another account. This saves time and effort as you do not need to go into a bank to transfer funds.*
  - a. Would you use it? Why or why not?  
*Answer: Learner's own answer.*
2. What are some of the drawbacks of online shopping?  
*Answer: Sometimes what you ordered does not match the image on the site or is not the right size (this is especially problematic with clothes and shoes) and security flaws in online shopping portals can leave you vulnerable to credit card theft.*
  - a. Have you done online shopping? Write a paragraph on your experience. Or explain why you do like or do not like online shopping.  
*Answer: Learner's own answer.*
3. Give three examples of different online transactions (not banking or shopping).  
*Answer: Some possible answers:*  
*Buying plane tickets*  
*Booking hotel rooms*  
*Comparing product or insurance prices*  
*Buying tickets for events.*



## Activity 11.3

## Memorandum

Read the extract below and answer the questions that follow:

WITH SMART CITIES, YOUR EVERY STEP WILL BE RECORDED

By Sara Degli-Esposti & Siraj Ahmed Shaikh | 17 April 2018

Modern cities are brimming with objects that receive, collect and transmit data. This includes mobile phones but also objects actually embedded into our cities, such as traffic lights and air pollution stations. Even something as simple as a garbage bin can now be connected to the internet, meaning that it forms part of what is called the internet of things (IoT). A smart city collects the data from these digital objects, and uses it to create new products and services that make cities more liveable.

Although they have huge potential to make life better, the possibility of increasingly smarter cities also raises serious privacy concerns. Through sensors embedded into our cities, and the smartphones in our pockets, smart cities will have the power to constantly identify where people are, who they are meeting and even perhaps what they are doing.

Following revelations that 87 million people's Facebook data was allegedly breached and used to influence electoral voting behaviour, it is ever more important to properly scrutinise where our data goes and how it is used. Similarly, as more and more critical infrastructure falls victim to cyber-attacks, we need to consider that our cities are not only becoming smarter, they are also becoming more vulnerable to cyber-attacks.

Extract from <https://theconversation.com/with-smart-cities-your-every-step-will-be-recorded-94527>

1. What does the term Internet of Things (IoT) refer to?

*Answer: IoT refers a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction*
2. Refer to paragraph 1. Many examples of IoT are given that could improve "liveability" in a city. Elaborate on any TWO of these examples (or give your own) by describing how they would improve citizens' lives.

*Answer: Learners' own work.*
3. How does the Internet of Things and Big data relate to each other?

*Answer: IoT is the senses, Big Data is the fuel, and artificial Intelligence is the brain to realize the future of a smart connected world. IoT is about devices, data and connectivity. The real value of Internet of Things is about creating smarter products, delivering intelligent insights and providing new business outcomes.*
4. Discuss two challenges a city would face when trying to implement the systems necessary to create smart cities, besides the challenge of funding such a project?

*Answer: Any of these:*

  - Technology challenges with coverage and capacity.*
  - Digital security.*
  - Legislation and policies.*
  - Lack of confidence or reluctance shown by citizens (lack of clarity around benefits).*
  - Funding and business models.*
  - Interoperability.*
  - Existing infrastructure for energy, water and transportation systems*
5. Many citizens of such smart cities say that privacy concerns are only relevant to people who have something to hide. Do you agree or disagree with this statement? Motivate your answer in a short paragraph.

*Answer: Learners' own work*
6. Describe a scenario of the type of cyber-attack that could be launched on a smart city.

*Answer: Learners' own work*



## Activity 11.5

## Memorandum

1. Answer the following questions.
  - a. Name three types of technologies from the 3IR that you have personally come into contact with.  
*Answer: Learners' own work.*
  - b. Name three types of technologies from the 4IR that you have personally come into contact with.  
*Answer: Learners' own work.*
  - c. Do you think any technologies from the first three industrial revolutions can be replaced by technologies from the 4IR? Motive your answer. Note: You can use an example to help you motivate your answer.  
*Answer: Learners' own work.*
2. The internet is playing a large role in the lives of 60% of the total South African population, with 51% accessing it through their mobiles. Find out what the situation is in your school.  
How many learners have access to the internet?  
How many learners access the internet through their smartphones?  
What brands of smartphones do they have?  
How much time do they spend on their phones?  
What are they doing on their phones?  
What social media platforms are they using?  
How does this compare to the world-wide trends?
  - a. Create your own task definition using the knowledge you have gained in this section.  
*Answer: Learners' own work.*
  - b. Share it with the rest of the class.  
*Answer: Learners' own work.*



## Activity 11.6

## Memorandum

Answer the following questions in your own words.

1. List THREE social websites you use. Also explain why you use each of them.

*Answer: Learner's own answer.*

*Use the following checklist as an assessment guideline:*

CRITERIA	YES/NO
Did the learner mention three social websites they use?	
Did the learner provide a reason for why they used each social website?	

2. Mention THREE advantages and THREE disadvantages of social media websites for you.

*Answer: Learner's own answer.*

*Use the following checklist as an assessment guideline:*

CRITERIA	YES/NO
Did the learner mention three advantages of social media?	
Did the learner mention three disadvantages of social media?	

3. Mention THREE things you must do and THREE things you must not do when using social media. Also give the reasons why you think that.

*Answer: Learner's own answer.*

*Use the following checklist as an assessment guideline:*

CRITERIA	YES/NO
Did the learner mention three do's for using social media?	
Did the learner mention three don'ts when using social media?	
Did the learner give a reasonable explanation for each do?	
Did the learner give a reasonable explanation for each don't?	

4. Why should you investigate news articles before you share them?

*Answer: Because fake news has become a big problem in recent years.*

*This is because most of the content on the Internet (and all of the content on social media) is generated by people with their own ideas, experiences and feelings, that content can never be 100% objective.*

5. Do you know of any examples of fake news? Discuss what you know about it and how it can affect people who read it.

*Answer: Learner's own answer.*

*Use the following checklist as an assessment guideline:*

CRITERIA	YES/NO
Did the learner provide at least one example of fake news?	
If the learner did not know of any example of fake news, did they explain why?	
Did the learner mention how this example of fake news could affect people reading it?	
If the learner did not know of any example of fake news, did they research an example and mention how it could affect people reading it?	





## Activity 11.7

## Memorandum

- Briefly discuss the limitations of fixed internet access, paying particular attention to the South African context.

*Answer: The main limitation is that the connection is restricted to one point, that is, the telephone line connector. This means that to connect multiple devices to the Internet, you would have to use some form of wireless adapter (usually a router with wireless capability).*

*In South Africa, you need to have a telephone line installed to connect to the Internet on a fixed-line Internet connection. This means that you will need to have a contract with Telkom and, very often, a contract with an Internet Service Provider (or ISP) who will provide you with access to the Internet.*
- What is a Wi-Fi hotspot and give an example of one?

*Answer: A Wi-Fi hotspot is a wireless access point that you can connect to using the wireless connectors in your computing device. When we talk about Wi-Fi hotspots, we are usually talking about the publicly accessible connection points that businesses supply (usually for free) to their customers.*

*Possible examples:*

*A wireless hotspot in your home.*

*A wireless hotspot created on the go using your cellular phone or other devices capable of connecting to the Internet.*

*Wi-Fi hotspots at public areas like coffee shops, airports and hotels.*

*Public service Wi-Fi hotspots like TshWiFi.*
- What does WiMAX stand for?

*Answer: WiMAX stands for Worldwide Interoperability for Microwave Access.*
- What is Bluetooth and how does it work?

*Answer: Bluetooth is a wireless communication standard that allows electronic devices to connect to and interact with each other wirelessly. Bluetooth does not rely on mobile data, cellular signal or Wi-Fi to connect, as long as the devices that want to connect are within range of each other (and have each other's pass codes), they can connect.*

*Bluetooth works like Wi-Fi, sending information using radio waves, but it does not need additional networking hardware to work.*
- List the two most common types of mobile Internet connections and describe how they differ from each other.

*Answer: They are as follows:*

*Mobile Internet lets smartphone users to connect to the Internet wherever they have decent network signal. Most cellular service providers also offer mobile Internet packages where you use a small modem (called a dongle) to connect to the cellular network.*



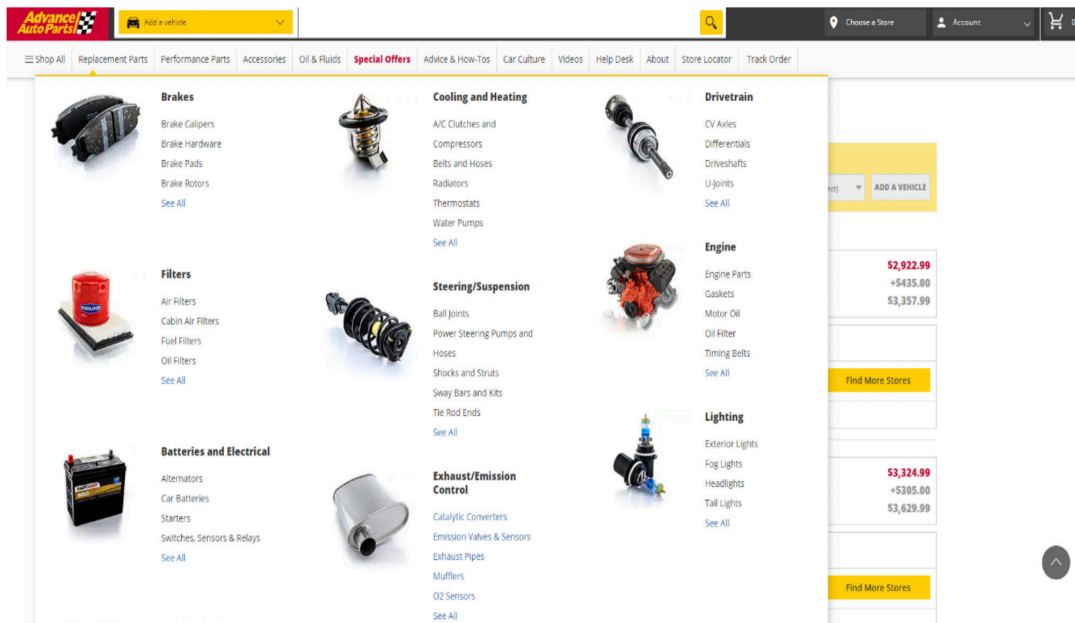
Activity 11.8

Memorandum

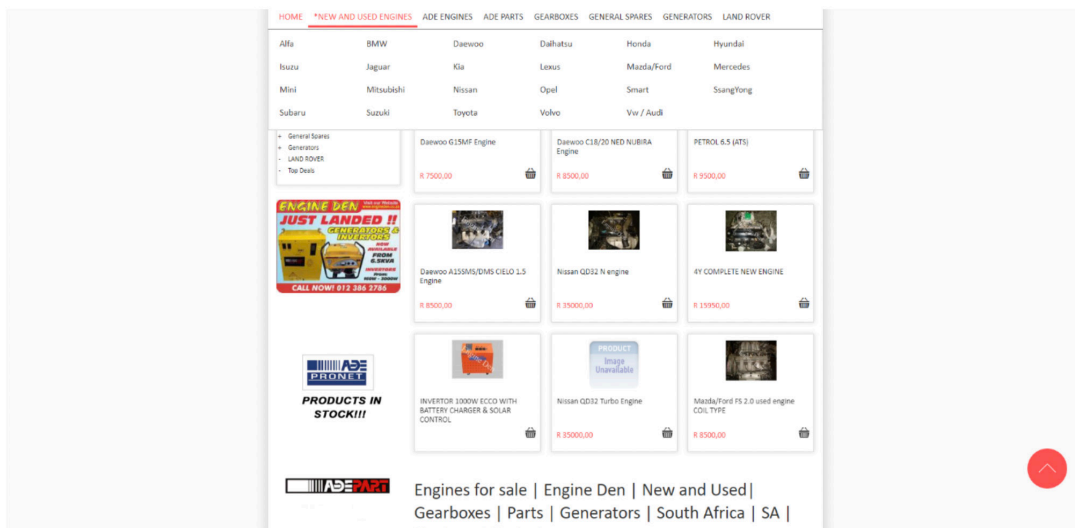
Answer the following questions in your own words.

- Below are two websites that sell car engines. Look at the navigation designs of these websites and answer the following questions.

Website A



Website B



- Which website has the best readability? Give TWO reasons for your answer.

Answer: Learner's own answer.

CRITERIA	YES/NO
Did the learner mention which website had the best readability?	
Did the learner provide two reasonable reasons for their preference?	

- Which website has the best navigation? Give TWO reasons for your answer.

Answer: Learner's own answer.

CRITERIA	YES/NO
Did the learner mention which website had the best navigation?	
Did the learner provide two reasonable reasons for their preference?	

- c. Which website has the best consistency? Give TWO reasons for your answer.

*Answer: Learner's own answer.*

CRITERIA	YES/NO
Did the learner mention which website had the best consistency?	
Did the learner provide two reasonable reasons for their preference?	

- d. Which website has the best layout? Give TWO reasons for your answer.

*Answer: Learner's own answer.*

CRITERIA	YES/NO
Did the learner mention which website had the best layout?	
Did the learner provide two reasonable reasons for their preference?	

- e. Which website has the best typography? Give TWO reasons for your answer.

*Answer: Learner's own answer.*

CRITERIA	YES/NO
Did the learner mention which website had the best typography?	
Did the learner provide two reasonable reasons for their preference?	

2. Based on your comparisons of the two websites, which website do you prefer. Give TWO reasons for your answer.

*Answer: Learner's own answer.*

*Make sure the learner's answers make sense in terms of their previous answers.*

3. Name TWO things that can be done to improve the website you least prefer.

*Answer: Learner's own answer.*

*Make sure that learner's answers are reasonable*

- 1.1** Which of the following features CANNOT be done with VoIP? (1)
- A. Voicemail
  - B. Call forwarding
  - C. Call waiting
  - D. Instant messaging
- Answer: D ✓*
- 1.2** Which of the following is not a disadvantage of video conferencing? (1)
- A. Lagging caused by bad internet connections
  - B. Technology can fail during a call
  - C. Remote access
  - D. Bad audio quality
- Answer: C ✓*
- 1.3** What does EFT stand for? (1)
- A. Electronic Financial Transfer
  - B. Electronic Funds Transfer
  - C. Electric Finance Transfer
  - D. Electric Fund Transfer
- Answer: B ✓*
- 1.4** Which of the following is an example of e-commerce? (1)
- A. Online shopping
  - B. Online banking
  - C. Online government services
  - D. Online gaming
- Answer: A ✓*
- 1.5** Smart fridges use embedded \_\_\_\_\_ to connect to the Internet. (1)
- A. Network adapters
  - B. Network cables
  - C. Wi-Fi
  - D. Interface cards
- Answer: A ✓*
- 2.** Choose the answer and write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** VoIP converts digital signals to analogue signals. (2)
- Answer: True. ✓✓*
- b.** VoIP can work with an unstable internet. (2)
- Answer: True. ✓✓*
- c.** Data packets are protected from internet attacks. (2)
- Answer: False. ✓ Data packets are vulnerable to internet attacks. ✓*
- d.** The Internet of Things is a system in which everyday appliances are starting to connect to computers. (2)
- Answer: False. ✓ The Internet of Things is a system in which everyday appliances are starting to connect to the internet. ✓*

3. Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (5)

COLUMN A	ANSWER
3.1. A washing machine that can be turned on remotely.	D Internet of Things
3.2. A website where one billion hours of video is watched each day.	B YouTube
3.3. An application that people can use to make video telephone calls.	H VoIP
3.4. A technique used to pay for online purchases.	I EFT
3.5. Emotionally abusing people online.	A Cyberbullying

4. Fill in the missing word(s) in the following statements. Provide only ONE word for each space.
- a. EFTs allow you to log onto a \_\_\_\_\_ website and send money from your account to another account. (1)  
*Answer: banking ✓*
  - b. If you do not have physical money on you can make a payment by \_\_\_\_\_. (1)  
*Answer: EFT ✓*
  - c. Any object that makes use a(n) \_\_\_\_\_ source can connect to the Internet of Things. (1)  
*Answer: power OR energy ✓*
  - d. \_\_\_\_\_ is the most popular social network. (1)  
*Answer: Facebook ✓*
  - e. Social media \_\_\_\_\_ things and people together. (1)  
*Answer: connects ✓*

5. Read the extract below and answer the questions that follow:  
 WITH SMART CITIES, YOUR EVERY STEP WILL BE RECORDED  
 By Sara Degli-Esposti & Siraj Ahmed Shaikh | 17 April 2018  
 Modern cities are brimming with objects that receive, collect and transmit data. This includes mobile phones but also objects actually embedded into our cities, such as traffic lights and air pollution stations. Even something as simple as a garbage bin can now be connected to the internet, meaning that it forms part of what is called the Internet of Things (IoT). A smart city collects the data from these digital objects, and uses it to create new products and services that make cities more liveable. Although they have huge potential to make life better, the possibility of increasingly smarter cities also raises serious privacy concerns. Through sensors embedded into our cities, and the smartphones in our pockets, smart cities will have the power to constantly identify where people are, who they are meeting and even perhaps what they are doing.  
 Following revelations that 87 million people’s Facebook data was allegedly breached and used to influence electoral voting behaviour, it is ever more important to properly scrutinise where our data goes and how it is used. Similarly, as more and more critical infrastructure falls victim to cyber-attacks, we need to consider that our cities are not only becoming smarter, they are also becoming more vulnerable to cyber-attacks.

- Extract from <https://theconversation.com/with-smart-cities-your-every-step-will-be-recorded-94527>
- 5.1 What does the term Internet of Things (IoT) refer to? (2)  
*Answer: The Internet of Things is a system in which everyday appliances are starting to connect to the internet. ✓✓*
  - 5.2 Refer to paragraph 1. Many examples of IoT are given that could improve “liveability” in a city. Elaborate on any TWO of these examples (or give your own) by describing how they would improve citizens’ lives. (2)

*Answer:*

*Modern cities are brimming with objects that receive, collect and transmit data.*

*This includes mobile phones but also objects actually embedded into our cities, such as traffic lights and air pollution stations.*

*Even something as simple as a garbage bin can now be connected to the internet, meaning that it forms part of what is called the Internet of Things (IoT).*

*A smart city collects the data from these digital objects and uses it to create new products and services that make cities more liveable.*

- 5.3. How do the Internet of Things and big data relate to each other? (2)

*Answer:*

*Big data analytics is emerging as a key to analysing IoT generated data from “connected devices” which helps to take the initiative to improve decision making. The role of big data in IoT is to process a large amount of data on a real-time basis and storing them using different storage technologies.*

- 5.4. Discuss two challenges a city would face when trying to implement the systems necessary to create smart cities, besides the challenge of funding such a project? (2)

*Answer:*

*increasingly smarter cities also raise serious privacy concerns.*

*smart cities will have the power to constantly identify where people are, who they are meeting and even perhaps what they are doing.*

*falls victim to cyber-attacks, we need to consider that our cities are not only becoming smarter, they are also becoming more vulnerable to cyber-attacks.*

- 5.5. Many citizens of such smart cities say that privacy concerns are only relevant to people who have something to hide. Do you agree or disagree with this statement? Motivate your answer in a short paragraph. (2)

*Answer: Learner’s own answer*

6. Like many of his friends, Zike likes to stay up to date with the current affairs of the world, gossip and the media. Zike’s teacher has noticed that a lot of his learners get distracted by their smartphones and as a result do not pay attention in class.

- 6.1. What THREE dangers are the learners most vulnerable to through social media websites like Facebook? (3)

*Answer: Use the following as an assessment guideline:*

*The negative psychological effects such as depression ✓*

*Cyberbullying. ✓*

*The social media bubble. ✓*

- 6.2. What FOUR best practices should Zike’s teacher suggest to the learners to help them navigate the social media they are regularly exposed to? (4)

*Answer: Use the following as an assessment guideline:*

*Some possible examples*

*Do not believe everything you read on social media. ✓*

*Be careful with who you talk to online. ✓*

*Be careful with what information you share about yourself online. ✓*

*Be wary of the way you speak to people online. ✓*

*Do not compare yourself with other people online. ✓*

- 6.3** Recently Zike has started to notice that someone has been stalking him online. (2)
- a.** Mention ONE thing he can do to solve the problem. (2)
- Answer: Use the following as an assessment guideline:*  
*Possible things that can help:*  
*Tell an adult he trusts about the problem. ✓*  
*Report the person to Twitter. ✓*
- b.** Mention one thing he should avoid to prevent the problem from getting worse.
- Answer: Possible things to avoid:*  
*Do not respond to the stranger's text messages. ✓*  
*Do not ignore the problem. ✓*
- 6.4** Briefly explain why Zike needs to know what data cap is. (2)
- Answer:*  
*Data cap is the limit to which he is allowed to go on the Internet. It is important for Zike to know so that he can manage his time online.*

TOTAL: [40]

## E-COMMUNICATIONS

CHAPTER OVERVIEW 

Unit 12.1 Managing email

Unit 12.2 Register a web-based email address

The following learning outcomes are covered by this chapter: 

- Describe how to manage email inboxes in relation to organising by using folders or labels
- Prioritise emails in your inbox
- Create a distribution list
- Register a web-based email address

GRADE: 11

DATE:

TEACHING TIME: 2 hours

## Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader

## Vocabulary

These words appear in the text.

- **Labels:** In Gmail, tags you can add to emails you send or receive to organise them.

## INTRODUCTION

An electronic communication device refers to any type of computerised device (instrument, equipment or machine) or software that can compose, read or send any electronic message using radio, optical or other electromagnetic systems. An electronic message can be a text message, electronic mail, an instant message like WhatsApp, teleconferencing, social networking, Skype, blogs or even access to an internet site.





## Activity 12.1

## Memorandum

Using a computer in class:

1. Create a Gmail account.
2. Create a distribution list.
3. Organise your emails by creating labels.
4. Set up filters in Gmail.
5. Apply the Gmail star system to your emails.
6. Prioritise your emails.

*Answer: Learner's own answer*

CRITERIA	YES/NO
Did the learner create a useable Gmail account (i.e. username is something they will be able to use professionally)?	
Did the learner create a distribution list?	
Did the learner create labels to organise emails?	
Did the learner create at least one filter?	
Did the learner use the star system in their emails?	
Did the learner use the tools in Gmail to prioritise their emails?	

Answer the following in your own words.

1. Describe how you create a Gmail account.  
 Use your web browser to go to the Gmail website ([www.gmail.com](http://www.gmail.com)).  
 Click on the Create an Account button. A new page should now open.  
 Enter your name and surname.  
 Choose a username for your account.  
 Enter a password for your account and enter the same password in the Confirm password space.  
 Click the Next button.  
 Pay careful attention to the items on the sign-up form that are optional. You can skip these items if you want to. For Google, submitting a phone number or recovery email address allows Google to help you recover your password if you forget it.  
 Fill in your birthday and gender before clicking next.  
 Read through Google's Privacy and Terms agreement.  
 Read through the custom options and select which information Google is allowed to record. Once you have selected options you are comfortable with, click 'I agree'.  
 The moment you click 'I agree', Google will create your new email account for you.
2. Give FIVE examples of good email experiences you have had. Give a reason for why you found each experience good.

*Answer: Learner's own answer*

*Use the following checklist as an overall assessment guideline:*

CRITERIA	YES/NO
Did the learner list five good email experiences they had?	
Did the learner justify their good email experiences?	

3. Give FIVE examples of bad email experiences you have had. Give a reason for why you found each experience bad.

*Answer: Learner's own answer*

*Use the following checklist as an overall assessment guideline:*

CRITERIA	YES/NO
Did the learner list five bad email experiences they had?	
Did the learner justify their bad email experiences?	

4. Based on your experiences, make your own list of FIVE email do's and don'ts.

*Answer: Learner's own answer*

*Make sure the learner creates at list of five reasonable do's and don'ts?*



## Activity 12.2

## Memorandum

Answer the following in your own words.

1. Give THREE examples of email applications.

*Answer:* Any three email applications. Examples include:

*Gmail*

*Hotmail*

*Outlook*

2. What are the benefits of using labels in Gmail?

*Answer:* Labels are a great way to organise Gmail. They are like tags you can add to emails you send or receive. Unlike folders, you can add more than one label to an email. You can also colour-code these labels to make it easier to see into which category an email fall.

3. Describe how you set up a filter in Gmail.

*Answer:*

*Click the SETTINGS gear icon near the top right corner of the Gmail screen.*

*Follow the SETTINGS link in the menu that comes up.*

*Select the FILTERS and BLOCKED ADDRESSES.*

*Click the CREATE A NEW FILTER link.*

*Complete the filter creation form.*

*From: Filter emails sent from a specific email address.*

*To: Filter emails sent to a specific email address.*

*Subject: Filter emails that use a specific subject line.*

*Has the words: Filter emails that contain specified keywords.*

*Doesn't have: Filter emails that don't contain specified keywords.*

*Has attachment: Filter emails that include an attachment.*

*Don't include chats: Ignore Hangouts chats when applying filters.*

*Size: Filter emails larger or smaller than a specific size.*

*You can also filter specific messages by opening the email, clicking the MORE button and selecting FILTER MESSAGES LIKE THESE.*

*If you used this option while in a specific email, Gmail automatically fills in the 'from' email address for you:*

*After selecting the criteria for your filter, click the CREATE FILTER WITH THIS SEARCH link to specify what Gmail must do with emails that match this filter.*

*Skip the inbox: Archive the email so that it does not appear in your inbox.*

*Mark as read: Have the email appear in your inbox as an already-read item.*

*Star it: Automatically star the email.*

*Apply the label: Apply a specific label to the email.*

*Forward it to: Automatically forward the email to a different email address.*

*Delete it: Send the email to the trash.*

*Never send it to Spam: Prevent Gmail from tagging the email as spam.*

*Always mark it as important: Automatically tag filtered emails as important.*

*Never mark as important: Tell Gmail not to tag filtered emails as important.*

*Categorise as: Automatically categorise filtered emails.*

*Also apply filter to matching conversations: Automatically applies the selected conditions to every email in your account that match the selected filter criteria.*

- 1.1** Which of the following is NOT electronic communication? (1)
- A.** Instant messaging
  - B.** Teleconferencing
  - C.** Faxing
  - D.** Social networking
- Answer: All of them are, even C ✓*
- 1.2** Which of the following can be done with Gmail labels? (1)
- A.** Creating filters
  - B.** Prioritising emails
  - C.** Archiving emails
  - D.** Organising emails
- Answer: D ✓*
- 1.3** What does the following process show? (1)
- Step 1: In the section of the Labels tab, click EDIT in the ACTIONS column for the label you want to move.
- Step 2: Check NEST LABEL UNDER and select a destination from the drop-down menu.
- Step 3: Click CREATE or SAVE.
- A.** How to move a label under another label
  - B.** How to filter your inbox
  - C.** How to move an email under a label
  - D.** How to star an email
- Answer: A ✓*
- 1.4** When would you use the Gmail star system? (1)
- A.** To highlight all your important emails
  - B.** To delete an email
  - C.** To organise all your emails
  - D.** To find a specific email
- Answer: A ✓*
- 1.5** You and a specific group of your friends share inspirational quotes to each other each day by email, which of the following make this process easier? (1)
- A.** Star system
  - B.** Labels
  - C.** Distribution list
  - D.** Filters
- Answer: C ✓*
- 2.** Choose the answer and write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)
- a.** When it comes to a password, try to choose a password that is short and easy to remember. (1)  
*Answer: False. When it comes to a password, try to choose a password that is long but easy to remember.*
  - b.** Artificial intelligence is a type of electronic communication. (1)  
*Answer: True*
  - c.** To keep your system simple and easy add all the labels and categories you need. (1)  
*Answer: False. To keep your system simple and easy do not have too many labels and categories.*
  - d.** You can remove a label from an email by clicking on the 'Remove' option on the label you do not want. (1)  
*Answer: False. You can remove a label from an email by clicking on the 'X' on the label you do not want.*

e. All labels are coloured by a dark grey text onto a light grey background. (1)

*Answer: True*

3. Choose a term/concept from COLUMN B that matches a description in COLUMN A. Write only the letter next to the question number (e.g. 1-A). (5)

COLUMN A	ANSWER
3.1. Gert wants all his unstarred emails at the bottom of his inbox.	H Starred first
3.2. Bianca uses this to manage the prioritisation of her emails.	G Priority inbox
3.3. When Malusi opens his email, he wants specific emails to appear first.	B Default
3.4. Priyanka wants to make sure that all her new emails are at the top of her inbox.	E Unread first
3.5. Gina wants to put all her important email at the top of her inbox.	C Important first

4. Fill in the missing word(s) in the following statements. Provide only ONE word for each space.

a. A distribution list consists of a list of email addresses in a standard email program or on a i) \_\_\_\_\_ system. Its main purpose is to allow a user to automatically ii) \_\_\_\_\_ a message to all the recipients on the distributions list at the same time. (2)

*Answer:*

i) *server* ✓

ii) *share* ✓

b. When someone sends you an email you need to iii) \_\_\_\_\_ to the email. Since the iv) \_\_\_\_\_ will not automatically know if you received the email or not. (2)

*Answer:*

iii) *reply* ✓

iv) *sender* ✓

5. Nandini is a website designer. She has not maintained her email account for a long time. But recently a client of hers has requested that she forward them an email that shows confirmation for a bank account payment. With more than 600 emails to sift through, to find the exact email her client is looking for will take time.

5.1 Mention ONE thing Nandini can do to better manage her emails? (1)

*Answer: Any ONE of the following:*

*Switch to labels.* ✓

*Create [1] and apply labels.* ✓

*Move email out of your inbox.* ✓

*Star important email.* ✓

*Delete or archive unwanted email.* ✓

5.2 Nandini wants to organise and separate all her emails under the following labels:

Clients

Personal

Family

Friends

- a. What process must Nandini follow to create a filter that will mark all her client's emails as important? (6)

*Answer: Use the following as an assessment guideline:*

*She must do the following:*

1. Open your Gmail account. ✓
2. Click the **SETTINGS** gear icon near the top right corner of the Gmail screen. ✓
3. Follow the **SETTINGS** link in the menu that comes up. ✓
4. Select the **FILTERS** and **BLOCKED ADDRESSES**. ✓
5. Click the **CREATE A NEW FILTER** link. ✓
6. Enter 'website design' in the **HAS THE WORDS** field. ✓
7. After selecting the criteria for your filter, click the **CREATE FILTER WITH THIS SEARCH** link. ✓
8. Then click the **ALWAYS MARK IT AS IMPORTANT** option on the page that ask you to determine what must be done to emails that match this filter. ✓

- b. What process must Nandini follow if she wants to create a label for all her client's emails? (6)

*Answer: Use the following as an assessment guideline:*

*She must do the following:*

1. Click the **SETTINGS** gear icon near the top right corner of the Gmail screen. ✓
2. Follow the **SETTINGS** link in the menu that comes up. ✓
3. Go to the **LABELS** tab shown above. ✓
4. Click **CREATE NEW LABEL** in the **LABELS** section. ✓
5. Type 'Clients' under **PLEASE ENTER A NEW LABEL NAME**. ✓
6. Then click on **CREATE**. ✓

- c. What process must Nandini follow if she wants to create a distribution list for her following clients? (8)

mpumi4sure@gmail.com

Jared.masters@creativedesigns.co.za

*Answer: Use the following as an assessment guideline:*

*She must do the following:*

1. Open the Google contacts page by typing in <https://contacts.google.com/> in your web browser. ✓
2. Select [mpumi4sure@gmail.com](mailto:mpumi4sure@gmail.com) by hovering your mouse over its profile picture or placeholder. ✓ Then click the checkbox that appears below your cursor. ✓
3. Select [Jared.masters@creativedesigns.co.za](mailto:Jared.masters@creativedesigns.co.za) by hovering your mouse over its profile picture or placeholder. ✓ Then click the checkbox that appears below your cursor. ✓
4. Click the **LABELS** icon in the upper right corner of the page. ✓
5. Click on **CREATE LABEL**. ✓
6. Type the name 'Clients' for the distribution list. ✓
7. Click **OK** at the bottom right corner of the pop-up window. ✓

TOTAL: [40]

# GENERAL CONCEPTS OF COMPUTING

## CHAPTER 13

### CHAPTER OVERVIEW

Unit 13.1 Defining the task

Unit 13.2 Finding information

Unit 13.3 Quality control of information

Unit 13.4 Spreadsheets and databases in data handling

Unit 13.5 Processing data

Unit 13.6 Analysing data and information

The following learning outcomes are covered by this chapter: 

- Create a task definition
- Gather data and information using various tools
- Describe how to evaluate data to ensure that it is reliable and accurate
- Discuss how to evaluate the validity of a website as a source of information
- Evaluate information for accuracy and validity
- Describe the role of spreadsheets and databases in data handling
- Discuss tools and techniques for data handling and how to extract data
- Describe how to analyse trends and patterns in data

**GRADE:** 11

**DATE:**

**TEACHING TIME:** 10 hours

#### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- QR reader



## Activity 13.1

## Memorandum

These words, phrases and abbreviations are in the same sequence as they appear in the text.

Activity 13.1: Memorandum

1. Define a task definition and a focus question for the 2018PAT.

*Answer:* Use the following checklist as an assessment guideline:

CRITERIA	YES/NO
Did the learner gather data from at least eight learners?	
Did the learner find out how many of the learners (they interviewed) had access to the internet?	
Did the learner find out how many of the learners (they interviewed) had access the internet through their cell phones?	
Did the learner find out what brands of cell phones the learners (they interviewed) had?	
Did the learner find out how much time the learners (they interviewed) spend on their phones?	
Did the learner find out how the learners (they interviewed) spend their time on their phones?	
Did the learner find out what social media platforms the learners (they interviewed) use?	
Did the learner compare the research they found at school to world-wide trends?	
Did the learner create a relevant task definition based on the research they found?	





## Activity 13.2

## Memorandum

Using the task definition, you created in Activity 13.1, answer the following questions to determine how you will research the topic and obtain the information you need for the task you defined.

1. Which type of information gathering tools will you use?

*Answer: Any of the following:*

*Electronically: Internet*

*Printed media*

*Surveys and questionnaires*

2. Identify at least two websites on the subject that you can use to compare your findings against.

*Answer: Learner's own answer.*

3. Develop a questionnaire with 10 questions that you can use to obtain school specific information.

*Answer: Learner's own answer.*

4. How will you assess that the information you get is accurate, sufficient, valid, current and objective?

*Answer: Learner's own answer.*

5. Discuss your work with another group and compare results.

*Answer: Use the following checklist as an assessment guideline for the overall activity:*

CRITERIA	YES/NO
Did the learners choose a valid and realistic data gathering tool?	
Did the learners choose two websites which are relevant to the task definition they defined in Activity 14.1?	
Did the learners develop 10 questions which are both relevant to their task definition and capable of letting them obtain school specific information?	
Did the learners mention different ways to determine if their information accurate, sufficient, valid, current and objective?	
Did the learners compare their results with another group?	



## Activity 13.3

## Memorandum

Answer the following questions in your own words.

1. What are the key questions to ask when evaluating a website?

*Answer: They are as follows:*

*Who supports this website?*

*Who is this website aimed at?*

*Who is the author? What are their credentials?*

*How is the content organised? Do all the links on the pages work?*

*How easy is it to navigate around the website? Is the design pleasing and attractive? How quickly does the site load?*

*What is the grammar and spelling like?*

*Is the content objective or does it support a single opinion?*

2. Why must you evaluate information?

*Answer: It is most likely that your primary source of information will be the Internet. Understanding the quality of information is important, since the internet is a place where anyone can upload information or make claims. You will need to look carefully at the information you use to discuss the task. You should look at the source of the information and try to find out who has an interest in this data (this is especially important when it comes to scientific papers) you should also think about what people will gain by spreading certain types of information on the internet.*

3. What are the five key things that determine the quality of information?

*Answer: They are as follows:*

*Authority*

*Accuracy*

*Currency of the information*

*Objectivity*

*How well the information covers the topic you are researching*

4. Determine if the following questions are open-ended or closed-ended and change the closed-ended questions into open-ended questions.

- a. Is it hot outside?

*Answer: Closed: What is the temperature outside?*

- b. Have you already completed your homework?

*Answer: Closed: Which homework must you still complete?*

- c. How does this make you feel?

*Answer: Open.*

- d. Do you have plans for the December holidays?

*Answer: Closed; What are your plans for the December holiday?*

- e. What are your plans for when you finish school?

*Answer: Open.*

- f. Do you like that person?

*Answer: Closed: Why do you or don't you like that person?*

- g. How do you book tickets for a flight?

*Answer: Open.*

- h. Is that your final answer?

*Answer: Closed: What is your final answer on the topic?*

- i. Are you satisfied with the results?

*Answer: Closed: How satisfied or dissatisfied are you with the results?*

- j. Did you know that ...?

*Answer: Closed: How did you know that ...?*



## Activity 13.4

## Memorandum

Answer the following questions in your own words.

1. What is the main difference between a database and a spreadsheet?

*Answer: Databases can do exactly what a spreadsheet can, but with more data and much faster, since spreadsheets are limited in the amount of data they can hold.*

2. When will you use a database rather than a spreadsheet?

*Answer: When you require the following:*

*For large amounts of data*

*For the bigger processing power of a server to do large and complex procedures and calculations with the data faster.*

*To better analyse and connect data.*

*To connect data more easily across multiple tables.*

3. What is data handling?

*Answer: Data handling is the process of collecting and organising data so that it can be sorted and analysed to get information.*

4. Give three examples of what you can use spreadsheets for.

*Answer: You can use them to:*

*Do mathematical calculations.*

*Display data using charts and graphs.*

*Define and refine data by breaking it down or splitting it.*

5. What can databases do better than spreadsheets?

*Answer: They can do the following:*

*Databases can do exactly what a spreadsheet can, but with more data, since spreadsheets are limited in the amount of data they can hold.*

*Databases are usually kept on a server, so they can use the bigger processing power of the server to do large and complex procedures and calculations with the data faster than a spreadsheet can.*

*Databases are able to better analyse and connect data than spreadsheets, which makes it easier for users to search for and extract information from the data.*

*Databases are designed to connect data more easily across multiple tables.*



## Activity 13.5

## Memorandum

Answer the following questions in your own words.

1. What is data verification?

*Answer: Data verification is the process of checking that the data a user has input is correct.*

2. Why do you use data verification?

*Answer: Data verification is mainly used when data is entered into a system manually (that is, a human has entered the data into the database or spreadsheet) and there is a possibility that there will be errors in the data.*

3. Name four data validation techniques and describe how they work and give an example of each.

*Answer: Any four of the following types of data validation techniques:*

TYPE	HOW IT WORKS	EXAMPLE
Check digit	The check digit is used to check that the data entered is correct.	Barcodes have check digits at the end. They are calculated using the digits before it.
Format check	Checks that the data is entered in the correct format.	The correct way to enter a date in the spreadsheet is YYYY-MM-DD, so if a user enters the date as 21-10-2017, the spreadsheet will highlight it.
Length check	This makes sure the data is not too long or too short	South African telephone numbers have 10 digits in them. If a user enters a telephone number with 11 digits, the spreadsheet will highlight that cell.
Lookup table	Looks up acceptable data in a table	There are only 12 months in a year.
Presence check	Checks that there are no blank fields	If you need the names of all employees, then a name field cannot be left blank.
Range check	Checks that a value falls within a specific range	The number of subjects a learner has must be more than 6 and less than 10.
Spell check	Checks spelling and grammar	This is most often found in word processing software.

4. What are two main types of data entry mistakes?

*Answer: They are:*

*Transcription errors*

*Transposition errors*

5. Give three examples of trends and how they would be displayed in a report.

*Answer: Any three of the following:*

*Upward trend: This graph's points would increase with time.*

*Downward trend or downtrend: This graph's points would decrease with time.*

*Correlation trend: This graph would show the direct relationship between two different trends. So, it would show two progressive lines on the same graph*

*Daily and seasonal cycles: This graph's points would fluctuate up and down irregularly*



### Activity 13.5

### Memorandum...continued

6. When analysing data, what is a “pattern”?

*Answer: Patterns are a little different. Data does not always move up or down over time. Data can also repeat itself in a predictable way or form a shape when placed in a graph. This type of data pattern is usually described in terms of its features, like centred, spread or shape.*

7. Analyse the data from Activity 13.4 and determine trends and patterns if any present. Present your findings to the class.

*Answer: Use the following checklist as an assessment guideline:*

CRITERIA	YES/NO
Did the learner analyse the data they gathered from Activity 15.4?	
Did the learner determine any trends in the data?	
Did the learner determine any patterns in the data?	

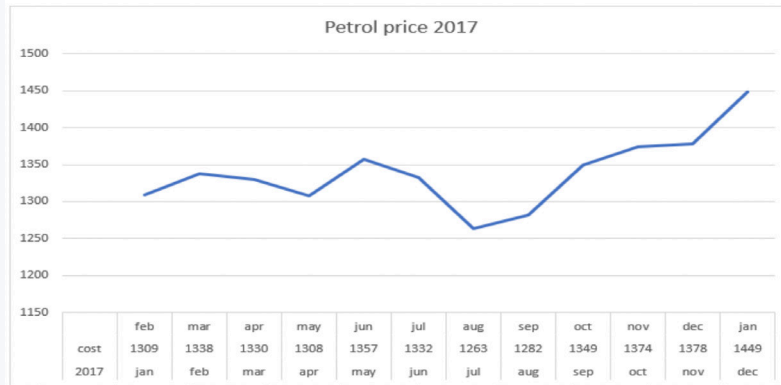
8. Write a short paragraph to interpret the graph Petro Price 2017 in Figure 13.6 and derive a conclusion from it.

*Answer: Learners' own work.*

- 1.1** Data handling can be used to do which of the following? (1)
- A. Collect information
  - B. Organise data
  - C. Sort information
  - D. Analyse data

Answer: B ✓

- 1.2** Which information can be gathered from the following data?(1)



- A. The price of petrol in 2018
- B. The components of petrol
- C. The trend of petrol prices during the year
- D. The amount of petrol produced in 2017

Answer: C ✓

- 1.3** Which of the following is the last step of the information management process? (1)
- A. Presenting information
  - B. Collecting data
  - C. Processing a database
  - D. Analysing results

Answer: A ✓

- 1.4** When evaluating a website, which of the following questions must NOT be asked? (1)
- A. Who supports this website?
  - B. Who is this website aimed at?
  - C. Which year was the website established?
  - D. Who is the author?

Answer: A ✓

- 1.5** When evaluating information, which of the following must NOT be determined? (1)
- A. Authority
  - B. Accuracy
  - C. Objectivity
  - D. Consistency

Answer: D ✓

2. Choose the answer and write True or False next to the question number. Correct the statement if it is FALSE. Change the underlined word(s) to make the statement TRUE. (You may not simply use the word NOT to change the statement.)

- a. Spreadsheets store their data on a server. (1)  
*Answer: False. Databases store their data on a server.*
- b. Databases are able to perform complex calculations on small amounts of data. (1)  
*Answer: False. Databases are able to perform complex calculations on large amounts of data.*
- c. Analysis is the first step of the information management process. (1)  
*Answer: False. Input is the first step of the information management process.*
- d. Surveys and questionnaires can be electronic. (1)  
*Answer: True.*
- e. If a website does not have the name of the author, it is a good website. (1)  
*Answer: False. If a website does not have the name of the author, it is a bad website.*

3.1 Which of the following situations would use a database or spreadsheet? Give a reason for your answer. (3)

SCENARIO	DATABASE/SPREADSHEET	EXPLANATION
a. Mari wants to organise the music in her playlist from most favourite to least favourite and according to genre.	Spreadsheet ✓	These organisation processes do not require a lot of storage space and complex calculations. ✓
b. Agnes wants to use the data from this year's soccer game data to predict who will win the next soccer match.	Database ✓	This process uses a lot of data and requires a lot of complex calculations. ✓
c. Martinique wants to keep a record of all the products in her grocery store as well as all her sales and expenses.	Database ✓	This requires the storage of a large amount of data and information. ✓

3.2 Which of the following types of graph would best represent the following scenarios? (3)

- Bar graph
- Line graph
- Histogram
- Pie chart

SCENARIO	TYPE OF GRAPH
a. Determining what percentage of the learner votes went to each of the four class representatives.	Pie chart ✓
b. Determining who in the chess club has won the most chess games.	Bar chart ✓
c. Determining the trend of iPhone sales.	Line graph ✓

4.1 List TWO tools you can use to gather data. (2)

*Answer: Information can be gathered using the following tools:*  
*Electronically: Internet ✓*  
*Printed media ✓*  
*Surveys and questionnaires ✓*

4.2 What is the difference between a trend and a pattern? (2)

*Answer: Trends are the general tendency of data to move in one direction] over time. In a trend, the data points may vary slightly, but they all still move in the same direction. ✓*

*A pattern is how data repeats itself in a predictable way or the shape it forms when placed in a graph. ✓*

4.2 Why should you avoid questions that start with 'Why'? Also mention how you can prevent this. (2)

*Answer: Try to avoid 'why' questions, because human nature leads people to make up a rational reason even when they don't have one. ✓ If you want to get more information, rather say 'Please tell me more about that.' ✓*

5. In order to lose weight and become healthier, Greg decided to start jogging so that he could run in different marathons. Each year Greg recorded how many kilometres he ran. Look at the following graph and answer the questions that follow.



5.1 What type of graph is this? (1)

*Answer: A line graph. ✓*

5.2 Does this graph represent data or information? Give an explanation for your answer. (2)

*Answer: It shows information. ✓ This is because it is representing organised data ✓ that you can gather information from. ✓*

5.3 According to this graph, when did Greg run the longest distance? (1)

*Answer: In 2009. ✓*

5.4 What is the trend from 2002 to 2009? (1)

*Answer: It is an upward trend. ✓*

5.5 Mention TWO things that this trend indicates about Greg's health. (2)

*Answer: Possible answers:*

*It indicates that:*

*That Greg lost weight. ✓*

*That Greg's health improved. ✓*

*That Greg's endurance increased. ✓*

5.6 Greg badly injured his ankle during a marathon and was advised by the doctor not run for the next year. According to this graph in which year did this injury occur? (1)

*Answer: In 2012 Greg got injured. ✓*



Nomfundo had to do research on the different phone brands on sale at the Innovation Tech store. While doing this she found that they sold the following brands:

- Samsung
- Apple
- Nokia
- Blackberry
- Huawei
- LG

Now Nomfundo wants to use this information to figure out what the most popular phone brands are at her school so she can know if it would be a good idea to promote this store at her school.

**5.7** Based on this scenario, identify the TWO problems Nomfundo must solve. (2)

*Answer: They are as follows:*

*What are the most popular phone brands at her school? ✓*

*Should she promote Innovation Tech at her school? ✓*

**5.8** What information gathering method Nomfundo can use to solve this problem. Give a reason for why she should this method, and a reason for why she cannot use the other TWO methods. (4)

*Answer: Use the following example as an assessment guideline:*

*She should use a survey or questionnaire ✓ because it can be easily distributed to a lot of people. ✓*

*She should NOT use printed media, because information about what type of phone the learners at her school like, is unlikely readily available to her in printed media. ✓*

*She should NOT do it electronically, there is a chance not everyone at her school has access to the internet. ✓*

**5.9** What TWO tips would YOU give Nomfundo about creating questions? (3)

*Answer: Some possible answers:*

*Start your open questions with words like 'how', 'what' 'where' when' and 'who'. ✓*

*If you use questions that start with 'why', elaborate on them. ✓*

*Do not start with 'was' or other forms of the verb 'to be' and 'to do'. ✓*

*Get the people you interview to tell a story rather than giving short answers. ✓*

*Avoid asking short-ended questions. ✓*

*Elaborate on short-ended questions with open-ended questions. ✓*

**5.10** Create TWO questions Nomfundo can ask her school peers to find the information she needs. (5)

*Answer: Use the following examples as an assessment guideline:*

*What phone do you have? ✓*

*Which phone brand do you prefer? ✓*

*Why do you prefer this phone brand? ✓*

*Have you heard about Innovation Tech? ✓*

*Would you by a phone from Innovation Tech? ✓*

TOTAL: [40]

PART B

# PRACTICAL CONTENT



# FILE MANAGEMENT IN WORD PROCESSING

## CHAPTER OVERVIEW

### Unit 1.1 File management

The following learning outcomes are covered by this chapter:

- Understand how file manager is used.
- Print a document.
- Use the different print options.
- Print to PDF.
- Share a document through email or on the cloud.

GRADE: 11

DATE:

TEACHING TIME: 2.4 hours

#### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

Microsoft Word is the most popular word processing program for creating a wide variety of different text-based documents that can be customised to suit users' needs. It is simple to use and is packed with features to help make good-looking, effective word processing documents.

Each new update has brought better and more advanced features to the program, like advanced page layouts and creating a table of contents with a single click.



Do this activity on your own and answer the questions that follow.

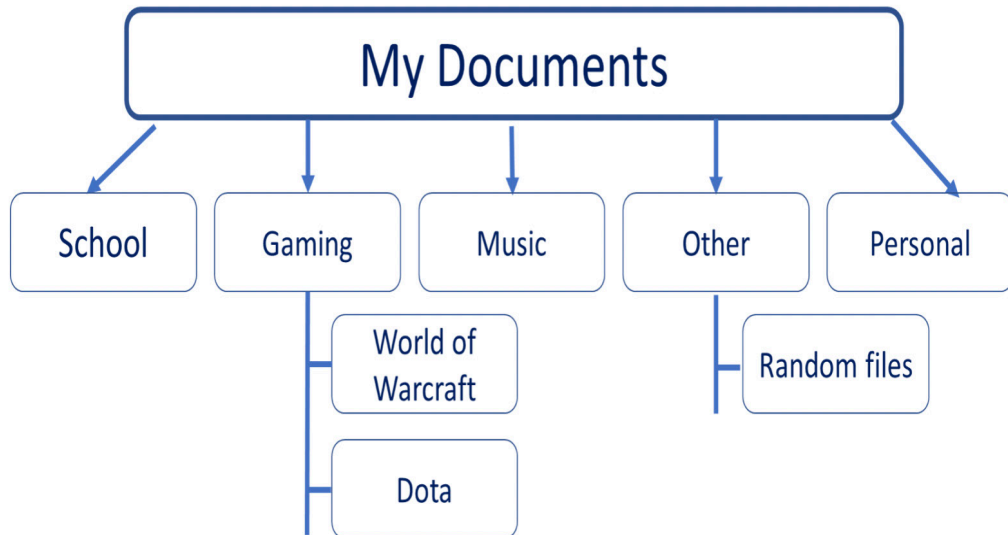
1. Briefly explain what folders (directories) are and their role in file management.  
*Answer: Directories store files in a computer. They are also called folders in Microsoft Windows.*
2. What does the figure below show an example of?

**C:\School\CAT\Assignment1.docx**

*Answer: A file path.*

3. What does the C:\ refer to?  
*Answer: The C-drive or the computer's main hard disk drive.*
4. Draw a diagram to indicate the following folders and sub-folders in a structure (use these names to create folders and subfolders):
  - a. You have files for school, gaming (World of Warcraft and Dota), music, other (Random files) and personal.

*Answer:*





5. Describe how the files on a computer can be organised to make it easier to find the appropriate files.  
*Answer: Files can be organised into folders and subfolders that are named. For example, the folder school can have the subfolders Maths, CAT and English and all the files for English would be kept in the English subfolder, etc.*

6. Fill in the following table based on these file paths:

- a. c:\Games\WorldofWarcraft\WoW.exe  
 b. e:\Videos\Comedy\Game night.mp4  
 c. 6.3 c:\Program Files (x86)\Calculator.exe

#	Drive letter	Folder	Subfolder	File name	Extension
a.	C:\	Games	World of Warcraft	WoW	.exe
b.	E:\	Videos	Comedy	Game night	.mp4
c.	C:\	Program Files (x86)		Calculator	.exe

7. Match the term in Column A with the correct description in Column B.

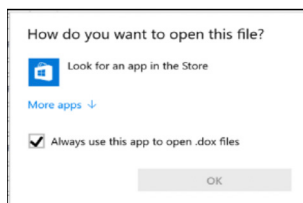
Column A		Column B
7.1	Text files	A This identifies the type of file and how the computer should interpret it
7.2	.gif	
7.3	Archives	B In Microsoft Windows, you will find deleted files here.
7.4	e.pub	C This is used to store plain text.
7.5	File extension	D Animation files that interpret moving images
7.6	Recycle bin	E You use this to paste files.
7.7	CTRL-V	F These are the type of files that can combine and compress multiple different files into one file.
7.8	CTRL-X	G You use this to cut files.
		H Locked document

*Answer: 7.1 C; 7.2 D; 7.3 H; 7.4 F; 7.5 A; 7.6 B; 7.7 E; 7.8 G*


8. List ONE difference between a .txt and .doc file.

*Answer: A \*.txt file can only use plain text. There are no formatting options available.*

9. You created a document in Word for your father and saved it as Organogram. When he wanted to open it, Windows displayed the following message (refer to the screenshot below):



When you examined the file, you found that it was saved as follows:

 **Organogram.docx**

- a. Explain the importance of file extensions by referring to the scenario above.  
*Answer: File extensions let the computer know which program to use to open a specific file. Having the correct file extension will make certain that a file can be opened.*
- b. Explain ONE way in which the problem can be solved.  
*Answer: Renaming the file to \*.docx*
- c. List TWO ways screenshots can be taken on a computer.  
*Answer: Using Ctrl + Print screen or using the Snipping Tool*
10. List TWO advantages of file compression.

*Answer: Any two of the following:*

*To create one file*

*To restore original files*

*To transfer files quickly*

*To take up less disk space on a computer's HDD*



## Activity 1.2

## Memorandum

1. Open *Act1.2(CAT).docx*.
  - a. Change the author of the document to your own name and surname.
  - b. Insert a title for the document in capital letters. Bold the Title.
  - c. Write a few sentences about why you chose CAT.
  - d. Change the font to Bookman old style, font size 16.
  - e. Save the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner change the author of the document to their name and surname?	
Did the learner insert a title for the document? <ul style="list-style-type: none"> <li>● Is the title in capital letters?</li> <li>● Is the title bold?</li> </ul>	
Did the learner write a few sentences about why they chose CAT as a subject?	
Did the learner change the font to Bookman Old Style?	
Is the font size 16 pt?	

2. Open the *Act1.2(Answer)* word processing document and use the *2Water* document to answer the questions that follow.
  - a. How many paragraphs appear in the document?  
*Answer: 83*
  - b. What is the first word that appears on line 100 in the document?  
*Answer: rates*



## Activity 1.3

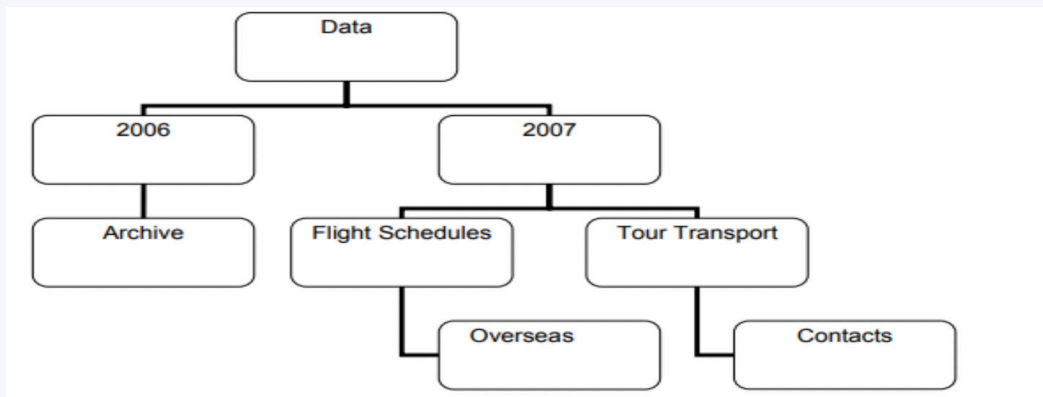
## Memorandum

1. Open the *PrintToPdf.docx* document.
  - a. Save this document as a PDF, using the same file name.
  - b. Close the Word document.
  - c. Attach the PDF file to an email and send it to your teacher.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner save the document as a PDF?	
Did the learner successfully attach the PDF document and sent you an email?	

1. The secretary has created the following folder structure on her computer's hard drive but needs some help in organising the files and folders. Use the **DATA** folder for this question.



- a. Select ALL the files of 2KB in the 2007 folder, and delete them. (2)
  - b. Move the Archive folder so that it becomes a subfolder of the 2007 folder. (2)
2. Open the Departures word processing document that is stored in the Tour Transport folder.
- a. Change the author property of the document to your name and surname. (2)
  - b. Make sure the file is *Read Only* so that it cannot be changed. (2)

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner delete all the files with 2kb of data?	
Did the learner move the Archive folder to make it a subfolder of 2007?	
Did the learner change the author property to their name and surname?	
Did the learner make the file is <i>Read Only</i> ?	

3. You have been asked to create a printable advert for a new shop opening. There is a ladies and kiddies section.
- a. Create the advert on a word document using appropriate alignments, fonts and sizes, tab stops, margins and layout. (22)
  - b. After you have created this advert, save it as a PDF in the Data folder as *Revision Activity\_PDF*.  
You will need:  
A logo  
Name for the shop  
At least three items per section with clear pricing  
The different sections (Women's and children's)  
Double-line page border  
Margin of 1 cm all round  
Portrait orientation  
Images  
Two pages long

*Answer:* Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner add in an appropriate logo?	
Did the learner give the shop a name?	
Are there at least three items per section?	
<ul style="list-style-type: none"> <li>Do these items have clear pricing?</li> </ul>	
Has the document been divided into different sections, for women's and children's?	
Does the document have a double-line page border?	
Is there a 1 cm margin all around the document?	
Is the document in portrait orientation?	
Does the document contain appropriate images (i.e. of the products advertised, etc.)	
Is the document at least two pages long?	
Is the document saved as a PDF, <i>Revision Activity_PDF</i> ?	

**TOTAL [30]**



# TEMPLATES AND INPUT DATA IN WORD PROCESSING

## CHAPTER OVERVIEW

Unit 2.1 Templates and styles

Unit 2.2 Import/Export data

The following learning outcomes are covered by this chapter: 

- Use built-in templates
- Create templates from existing documents.
- Link objects in a word processor.
- Import data from other file formats.

**GRADE:** 11

**DATE:**

**TEACHING TIME:** 2.4 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

Templates are sample documents that already have some details in place. These details can be changed by the user. The user can then use the template to create, edit and manipulate the document and then save it as a normal word processing document.



## Activity 2.1

## Memorandum

Complete the following activity on your own.

1. Create a new template.
  - a. Open any one of the in-built letter templates.
  - b. Change the 'Normal' text style to: Colour: Red, Text size: 11 pt.
  - c. Save the document as *MyTemplate* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner use one of the in-built letter templates?	
Did the learner change the normal font to: Colour: Red, Text size: 11 pt?	
Did the learner save the document in the correct template format?	

2. Convert a document to a template.
  - a. Open *Act2.1(Statement).docx*.
  - b. Next to 'Bill To' section, add a field that will automatically insert the user name of the person using the template.
  - c. At the 'Date' section, modify the field so that automatically inserts the current date.
  - d. Save and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner use the <i>Act2.1(Statement).docx</i> document?	
Did the learner add an author field next to the 'Bill to' section?	
Does the author field the learner added automatically update to the current Microsoft Office 'user name'?	
Note: The current 'user name' of the version of Microsoft Office that you open the document with should appear i.e. The lecturer's user name.	
Does the 'Date' field automatically update to the current date?	
Did the learner save the in the correct Word template format?	

3. Create your own template.
  - a. Open a blank document.
  - b. Create your CV.
  - c. Create at least ONE heading style and ONE font style that you feel will enhance your CV.
  - d. Save and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner write a CV?	
Did the learner create at least one heading style to enhance the look and feel of his/her CV?	
Did the learner create at least one font style to enhance the look and feel of his/her CV?	
Did the learner save the document in the correct Word template format?	



Activity 2.2

Memorandum

Complete the following activity on your own.

1. Import data from a text file.
  - a. Open a new blank Word document.
  - b. Import the data from the *Example\_Data* text file. Make sure that the text is unformatted.
  - c. Convert this data into table.
  - d. Save the document as *Example\_Data.docx* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner import the correct data from <i>Example_Data</i> ?	
Is the data the learner imported unformatted - the default 'Normal' style?	
Did the learner correctly convert the text into a table?	
Did the learner save the document in the correct Word format?	

2. Import data from a Word file.
  - a. Open a new blank Word document.
  - b. Import the data from *2Trade\_Handel* as a link.
  - c. Insert a page break. Then on the next page import the data from *1Water*.
  - d. Insert a page break. Then import the data from *2Trade\_Handel* again, but not as a link.
  - e. Save the document as *Trade\_Handel(imported)* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner correctly import the data from <i>2Trade_Handel</i> on the first page for Question 2.b.?	
Is the first importation of <i>2Trade_Handel</i> a link? Note: If it is a link, when you click on the text it will be highlighted like a link.	
Did the learner correctly import the text from <i>1Water</i> after the first importation of <i>2Trade_Handel</i> (question 2.3)?	
Did the learner correctly import the data from <i>2Trade_Handel</i> again, after <i>1Water's</i> text (Question 2.d.)? Note: This text must not be a link.	
Does all the imported text still have its original formatting?	
Did the learner add a page break between each importation of text?	
Did the learner save the document in the correct Word format?	



Complete the following activity on your own.

1. Import data from an Excel document.
  - a. Open a blank Word document.
  - b. Import the data from the *2Det\_Bes.xlsx* document. Note: Do not import it as a link.
  - c. Insert the following as a header to the document: "Grade 11: Name and Surname".
  - d. Next to the table, re-import the *2Det\_Bes.xlsx* document as an icon.
  - e. Insert a page break. Then import the data from *2Det\_Bes.xlsx* again. This time import it as link.
  - f. Save document as *Import\_spreadsheet.docx* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner correctly import the data from <i>2Det_Bes.xlsx</i> for Question 1.b? Note: This data must not be imported as a link.	
Did the learner insert a header?	
Did the learner import <i>2Det_Bes.xlsx</i> again as an icon for Question 1.d? Note: This icon must be located next to the first importation's table.	
Did the learner correctly import <i>2Det_Bes.xlsx</i> again for question 1.e? Note: This data must be imported as a link.	
Did the learner add a page break before the last importation (question 1.e)?	
Did the learner save the document in the correct Word format?	

2. Use a text file to import data from an Excel document.
  - a. Open a blank Excel document.
  - b. Open the text file *Example\_Data*.
  - c. Select all the data in *Example\_Data* and copy it.
  - d. Select the first cell the Excel document and paste the data you copied from *Example\_Data*.
  - e. Save the Excel document as *NewExampleData.xlsx*.
  - f. Open a blank Word document.
  - g. Import *NewExampleData.xlsx* as a link.
  - h. Save the document as *NewExampleData.docx* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner correctly copy all the data from <i>Example_Data</i> into an Excel document?	
Did the learner save the Excel document as <i>NewExampleData.xlsx</i> ?	
Did the learner correctly import <i>NewExampleData.xlsx</i> into the Word document as a link?	
Did the learner save the document in the correct Word format?	

1. Open the *Chapter 2\_Revision Activity* word processing document, which contains an overview of the Harvest Food Festival.
  - 1.1 Follow the instructions below to the first page of this document so that it appears similar to the one in the example below.



NOTE: The WordArt and changed picture may appear slightly different from that which is shown below.

- 1.2 Format the heading “HARVEST FOOD FESTIVAL” as follows:
  - Apply any WordArt of your choice to the heading. (2)
  - Rotate the WordArt by 90 degrees. (2)
  - Crop the picture so that only the fruit and basket display. (2)
  - Apply a soft edge oval frame to the picture. (2)
- 1.3 Insert the file *Fruits.docx* as a linked object below the image. The file must be displayed as an icon. (3)
2. The organisers of the festival needs to know how many learners will attend the festival. Do the following changes on page 2:
  - 2.1 Open the spreadsheet *2Harvest* and work in the Attendance worksheet.
    - a. Copy and paste the information found in the worksheet as a linked table on page 2 of your word document. (3)
    - b. Modify the tear-off slip part as shown below.

HARVEST FOOD FESTIVAL	
<b>VENUE:</b>	<b>Coetzenburg Sports Ground</b>
<b>School</b>	
<b>Grade</b>	
<b>Age</b>	
<b>Name</b>	
<b>Surname</b>	
<b>Tear-off slip</b>	
<b>Many thanks! We would like to attend</b>	
<b>Number of learners</b>	
<b>Total payment</b>	

- Remember to update any changes. (13)
- Change the row height of all the rows of the table to exactly 20.
- Merge and center row 11 of the table.
- Remove the cell borders of rows 10 and 11 of the table as shown.
- Insert a row at the bottom of the table.
- Change the outside border of only the bottom three rows to a double-line border.
- Make sure the font for the entire table is Cambria and 14pt.
- Type your information in rows 4-8.

- 2.2 Insert a 3 pt shadow-page border for the entire document. (3)  
Save and close both documents.

*Answer: Use the following checklist as an assessment guideline:*

	Criteria	Total marks
1.1	WordArt applied to the heading ✓ ✓ WordArt rotated 90° ✓ ✓ Picture cropped ✓ ✓ Soft edge oval frame ✓ ✓	
1.2	<i>Fruits.docx</i> is inserted as a linked object ✓ ✓ File is displayed as an icon ✓	
2.1 (a)	Information from the spreadsheet has been pasted as a linked table on page 2 ✓ ✓ ✓	
2.1 (b)	Change the row height of all the rows of the table to exactly 20. ✓ ✓ Vertically centre the contents of row 11. ✓ ✓ Font: Cambria and 14pt. ✓ ✓ Insert a row at the bottom of the table. ✓ Remove the cell borders of rows 10 and 11 of the table as shown. ✓ ✓ Change the outside border of only the bottom three rows to a double line border. ✓ ✓ Information typed in rows 4-8. ✓ ✓	
2.2	3 pt shadow-page border added ✓ ✓ ✓	

**TOTAL: [30]**

# EDITING

## CHAPTER OVERVIEW

### Unit 3.1 Editing

The following learning outcomes are covered by this chapter: 

- Use Paste Special.
- Use Find and Replace.

**GRADE:** 11

**DATE:**

**TEACHING TIME:** 2.4 hours

#### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

In Grade 10, learners learned about the basics of editing in a word processor, as well as using Find and Replace. In this section, they will learn about using Paste Special. They will also learn about the different techniques that one can use when replacing in a document.



## Activity 3.1

## Memorandum

Complete the following activity on your own.

1. Copy and paste text.
  - a. Open a blank Word document.
  - b. Open the *Act3.1(Party)* document and select the text from the words “Blocos are groups” to the words “suitable for families”, then copy the selected text.
  - c. Paste these words without formatting into the new document.
  - d. Then paste the same words with their original formatting.
  - e. Then paste the same words as a Microsoft object.
  - f. Save (with an appropriate name) and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner copy the correct text from <i>Act3.1(Party)</i> without formatting?	
Did the learner copy the correct text from <i>Act3.1(Party)</i> with the original formatting?	
Did the learner copy the correct text from <i>Act3.1(Party)</i> as a Microsoft object?	
Did the learner save the document in the correct Word format?	

2. Copy and paste pictures.
  - a. Open a blank word processing document.
  - b. Open the *Act3.1(Flora)* document and then select the picture of the flowers and copy it.
  - c. Paste it as a JPEG.
  - d. Open the *Act3.1(Flora)* document again and select the text from the words “Fynbos is the major vegetation” to the words “best to exclude them”, then copy them.
  - e. Paste it as an image in the new document.
  - f. Save and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner copy the correct picture and paste it as a JPEG?	
Did the learner copy the correct text from <i>Act3.1(Flora)</i> and paste it as an image?	
Did the learner save the document in the correct Word format?	

3. Copy and paste mixed content.
  - a. Open the *Act3.1(Party)* document and then select all the content from the words “Individual Blocos” to the words “popular with young people”, then copy the selected text.
  - b. Paste it as formatted text.
  - c. Insert a page break. Then Paste the same content as unformatted text.
  - d. Save and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner copy the correct text from <i>Act3.1(Party)</i> with its original formatting?	
Did the learner copy the correct text from <i>Act3.1(Party)</i> unformatted?	
Did the learner insert a page break in the relevant place?	
Did the learner save the document in the correct Word format?	





1. Find and replace a word.
  - a. Open a blank Word document.
  - b. Open the *Act3.2(Statistics)* document and select and copy all the text.
  - c. Paste the content with its original formatting.
  - d. Find the word 'healthy' and delete it.
  - e. Find the word 'fast food' and replace it with 'fast food'.
  - f. Find the word 'fries' and replace it with 'Fries'.
  - g. Replace the word 'people', with the word 'humans' bolded.
  - h. Save and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner copy the correct text from <i>Act3.2(Statistics)</i> with its original formatting?	
Did the learner delete all occurrences of the word 'healthy'?	
Did the learner replace all occurrences of the word 'fast food' with 'fast food'?	
Did the learner replace all occurrences of the word 'fries' with 'Fries'?	
Did the learner replace all occurrences of the word 'people' with 'humans'?	
Did the learner save the document in the correct Word format?	

2. Find and replace a sentence.
  - a. Open the *Act3.2 (Tips)* document and select the text from the words "Don't believe what you read" to the words "your kid's mud pies", then copy them.
  - b. Paste the content at the end of the document with its original formatting.
  - c. Find the words 'healthy food tips' in the document and replace them with 'dietary cuisine suggestions'.
  - d. Remove any double spaces. Replace them with single spaces.
  - e. Remove any sentences that start with the words 'Just make'.
  - f. Save and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner copy the correct text from <i>Act3.2 (Tips)</i> with its original formatting?	
Did the learner replace all occurrences of the words 'healthy food tips' with 'dietary cuisine suggestions'?	
Did the learner replace all the occurrences of double spaces with single spaces?	
Did the learner remove all the sentences that started with 'Just make'?	
Did the learner save the document in the correct Word format?	

1. Open the *Chapter 3\_Revision Activity* word processing document and edit and format this document according to the instructions below:
  - a. Adjust the logo to appear as follows: (3)



- b. Group the two parts that make up the logo and resize this logo to 5 cm x 5 cm to appear to the left of the words Travel Safely. (4)
  - c. Set and apply appropriate tabs so that the text below the first paragraph appears as follows: (4)

Bali	February 2008	R 7 918,00
Iberia	June 2008	R 14 135,00

- The word “insurance” has been spelt incorrectly as “insurrance”. Replace the incorrect spelling with the correct spelling and highlight the corrected text with the colour yellow. (3)
- d. Set the text on only the first page to be fully justified. (2)
  - e. Set the paragraph spacing in the document to 3 pts before and after each paragraph. (3)
  - f. The word “tour” was mistakenly used instead of the word “travel”. Replace ALL occurrences of the word tour with the word travel in bold. (4)
  - g. Place a red 21 pt border around ALL the text under the first heading ARE YOU PLANNING AN OVERSEAS TRIP?. (3)
  - h. Use the document: *3Highlights.docx*. Copy the text in this document and paste special as a Microsoft Word Document object at the bottom of the document. (4)
- Save and close the document.

*Answer: Use the following checklist as an assessment guideline:*

	Criteria	Total marks
1.a.	Flip each part of the logo horizontally ✓ ✓ ✓	
b.	The parts of the logo have been grouped ✓ ✓ Logo has been resized to 5 cm x 5 cm ✓ Logo appears on the left of the words Travel Safely ✓	
c.	Tabs have been added to align text correctly ✓ ✓ ✓ ✓	
d.	“insurrance” has been corrected to “insurance” ✓ Corrected text has been highlighted (yellow) ✓ Corrected text appears in the 2nd paragraph ✓	
e.	Text on the first page only is fully justified ✓ ✓	
f.	Paragraph spacing is 3 pt before and after ✓ ✓ ✓	
g.	All instances of “tour” replaced with “ <b>travel</b> ” ✓ ✓ ✓ in bold ✓	
h.	Red border applied to ALL text under the first heading. ✓ ✓ ✓	
i.	Text pasted as a Microsoft Word Document object ✓ ✓ Correct document used ✓ ✓	

**TOTAL: [30]**

# PAGE AND DOCUMENT LAYOUT

## CHAPTER OVERVIEW

Unit 4.1 Page layout and design

Unit 4.2 Document layout

Unit 4.3 Paragraphs

The following learning outcomes are covered by this chapter: 

- Add themes and cover pages to Word documents.
- Add section breaks and headers and footers to Word documents.
- Customise bullets and numbering in paragraphs.

GRADE: 11

DATE:

TEACHING TIME: 2.4 hours

### Resources

Each learner should have access to:

- CAT 10 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

In this section learners will learn to select themes and cover pages to enhance their word processing documents. They will use section breaks, headers and footers to give their documents a more professional look. And lastly, they will find out how to customise bullets and numbering in documents.



## Activity 4.1

## Memorandum

1. Apply a theme.
  - a. Open a blank Word document.
  - b. Import the text from *Act4.1(Guide)* with its original formatting.
  - c. Apply the Crop theme to the document.
  - d. Save the document as *Act4.1(Guide\_Theme)* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner correctly copy the content from <i>Act4.1(Guide)</i> in its original format?	
Did the learner correctly apply the Crop theme to his/her document?	
Did the learner save the document in the correct Word format?	

2. Change a theme.
  - a. Open a blank Word document.
  - b. Import the text from *Act4.1(Guide)* with its original formatting.
  - c. Apply the Headlines theme (or any theme on the computer).
  - d. Change the theme colour to Red Orange.
  - e. Change the page colour to an appropriate background of your choice.
  - f. Change the theme font to Century Gothic.
  - g. Save the document as *Act4.1(Guide\_Theme2)* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner correctly copy the content from <i>Act4.1(Guide)</i> in its original format?	
Did the learner correctly apply Headlines theme (or any theme on the computer)?	
Did the learner change the theme colour to Red Orange?	
Did the learner change the page colour to an appropriate background?	
Did the learner change the theme font to Century Gothic?	
Did the learner save the document in the correct Word format?	

3. Create your own theme.
  - a. Import the text from *Act4.1(Guide)* in its original formatting.
  - b. Apply any theme of your choice.
  - c. Create and apply your own customised theme colour. Name it 'MyStyle'.
  - d. Create and apply your own theme font. Name it 'MyFont'.
  - e. Add a page border.
  - f. Save the document as *MyTheme.docx* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner correctly copy the content from <i>Act4.1(Guide)</i> in its original format?	
Did the learner apply a theme of their choice?	
Did the learner create and apply a theme colour of his/her own? Note: This theme colour must be named 'MyStyle'.	
Did the learner create and apply a theme font of his/her own? Note: This theme colour must be named 'MyFont'.	
Did the learner add a page border of his/her choice?	
Did the learner save the document in the correct Word format?	



Complete the following activity on your own.

Note: Go to the options setting and change the 'User name' field to your name and surname.

1. Apply a cover page.
  - Open a blank Word document.
  - Apply a cover page of your choice.
  - Assume that this cover page is for an essay about global warming. Fill in the empty fields (placeholders) on the page with appropriate content.
  - Save the document as *GlobalWarming* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner apply a cover page of his/her choice?	
Does the Microsoft Office "user name" automatically appear in the relevant fields? Note: The current "user name" of the version of Microsoft Office that you open the document with should appear i.e. The lecturer's user name.	
Did the learner fill in all the empty fields with the content/titles relevant to global warming?	
Did the learner save the document in the correct Word format?	

2. Create a cover page.
  - Open a blank Word document.
  - Apply a cover page of your choice.
  - Change the position of at least ONE element on the page.
  - Change the colour of at least ONE element on the page.
  - Change the font size of at least ONE element on the page.
  - Insert and position a text box of your choice.
  - In the text box write a short paragraph explaining what elements you have changed on the cover page.
  - Save the document as *CoverPage* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner apply a cover page of his/her choice?	
Does the Microsoft Office "user name" automatically appear in the relevant fields? Note: The current "user name" of the version of Microsoft Office that you open the document with should appear i.e. The lecturer's user name.	
Did the learner change the position of at least one element on the page?	
Did the learner change the colour of at least one element on the page?	
Did the learner change the font size of at least one element on the page?	
Did the learner insert a text box on the cover page?	
Did the learner explain what changes he/she made to the cover page in the text box he/she inserted?	
Did the learner save the document in the correct Word format?	



## Activity 4.3

## Memorandum

Complete the following activity on your own.

Use section breaks.

Open a blank Word document.

Import the content from *Act4.3(1Artists)* in its original formatting.

Insert a continuous section break after the words “in South Africa (insert citation here).”.

Insert a next page section break after the words “engages with issues in modern culture.”.

Insert an even page section break after the words “multiple exhibitions in South Africa and abroad.”.

Insert an odd page section break after the words “internationally as well as in his home country.”.

Insert a column break after the words “attraction and repulsion that cowhide evokes in the viewer.”.

Save the document as *Artist(YourName)* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner correctly import the content from <i>Act4.3(1Artists)</i> in its original formatting?	
Did the learner insert the continuous section break in the correct place?	
Did the learner insert the next page section break in the correct place?	
Did the learner insert the even page section break in the correct place?	
Did the learner insert the odd page section break in the correct place?	
Did the learner insert the column page section break in the correct place?	
Does the footer numbering look as follows: 1, 2, 4, 5, 7, 8? Note: If the learner inserted the section breaks in the correct sections his/her footer numbering should be correct.	
Did the learner save the document in the correct Word format?	



## Activity 4.4

## Memorandum

Complete the following activity on your own.

- Apply headers and footers.
  - Open a blank Word document.
  - Import the text from *Act4.4(Global)*.
  - Insert the Facet (Even page) header.
  - Change the header's font colour to yellow, bold, 14 pt.
  - Insert the Facet (Odd page) footer.
  - Change the footer's title to 'African Art'.
  - Change the footer's subtitle to 'Copyright@2019'.
  - Save the document as *GlobalHeader(YourName)* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner correctly import the text from the <i>Act4.4(Global)</i> document?	
Did the learner apply the Facet (Even page) header?	
Did the learner change the header's font as follows: font colour: Yellow; font style: Bold; font size: 14 pt?	
Did the learner apply the Facet (Odd page) footer?	
Did the learner change the footer's title to 'African Art'?	
Did the learner change the footer's subtitle to 'Copyright@2019'?	
Did the learner save the document in the correct Word format?	

2. Modify the header and footer elements.

- Open a blank Word document.
- Import the content from the document *Act4.4(Top15SA)*, in its original formatting.
- Change the footer as follows:
  - Align the page number in the centre.
  - Add the author name and align it to the right-hand side.
- Change the header as follows:
  - Add date (YYYY-MM-DD) that automatically updates on the right-hand side.
  - Add the file name and align it to the left-hand side.
- Save *Top15SAHeader(YourName)* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner correctly import the content from <i>Act4.4(Top15SA)</i> in its original formatting?	
Did the learner align the footer number to the centre?	
Did the learner add the author name in the footer?	
Does the Microsoft Office "user name" automatically appear in the author name field?  Note: The current "user name" of the version of Microsoft Office that you open the document with should appear i.e. the lecturer's user name.	
Did the learner align the author name to the right-hand side of the footer?	
Did the learner add a date with the correct format (i.e. YYYY-MM-DD) to the header?	
Does the date automatically update to the current date?	
Did the learner align the date to the right-hand side of the header?	
Did the learner add the file name to the header?	
Did the learner align the file name to the left-hand side of the header?	
Did the learner save the document in the correct Word format?	

3. Unlink and link footer sections.

- Open a blank Word document.
- Import the content from *Artists* in its original formatting.
- Add a next page section page after the words "multitude of cultures surrounding them."
- On the first page, Use Page Number to align the page number to the bottom left. Hint: Use the Plain Number options.
- Change the numbering format for the section before the section break to A, B, C, etc.
- Restart the numbering for the section after the section break.
- Save the document as *ArtistsFooter(YourName)* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner correctly import the content from <i>Artists</i> in its original formatting?	
Did the learner add a next page section page after the words “multitude of cultures surrounding them.”?	
Did the learner align the page numbers of the first two pages to the left-hand side of the footer?	
Did the learner change the numbering of the first two pages to: A and B?	
Did the learner restart the numbering of the last three pages to: 1, 2, and 3?	
Are the page numbers for the learner’s last three pages still centre aligned in the footer?	
Did the learner save the document in the correct Word format?	

4. Unlink and link header and footer sections.

- Open a blank Word document.
- Import the content from *Artists* in its original formatting.
- Add a page break after the words “that engages with issues in modern culture.”.
- Add a next page section page after the words “multiple exhibitions in South Africa and abroad.”.
- Add an odd page section break after the image below “Figure 3: Freedom Fighters 2024”.
- Add a next page section page after the words “internationally as well as in his home country.”.
- On the first two pages:
  - Use Page Number to add the page numbering on the top of the page (centre aligned). Hint: Use the Plain Number options.
  - Remove the numbering on the footer of the first two pages.
- On page 3:
  - Use Page Number to add the page numbering on the top of the page (left aligned). Hint: Use the Plain Number options.
  - Remove the numbering on the footer.
- On the last two pages:
  - Use Page Number to add the page numbering on the top of the page (centre aligned). Hint: Use the Plain Number options.
  - Save the document as *ArtistsPageNumber(YourName)* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner correctly import the content from <i>Artists</i> in its original formatting?	
Did the learner add a page break after the words “that engages with issues in modern culture.”?	
Did the learner add a next page section page after the words “multiple exhibitions in South Africa and abroad.”?	
Did the learner add an odd page section break after the image below “Figure 3: Freedom Fighters 2024”?	
Did the learner add a next page section page after the words “internationally as well as in his home country.”?	
On the first two pages, did the learner add the page numbering to the header of the page? Note: Make sure the page numbering is centre aligned.	
On the first two pages, did the learner remove the page numbering on the footer?	
On page 3, did the learner add the page numbering to the header of the page? Note: Make sure the page numbering is left aligned.	
On page 3, did the learner remove the page numbering on the footer?	



4. ... continued

Criteria	Yes/No
On page 4, is the page number still in the centre of the footer? Note: The page number should be 5 and there must not be any page numbering in the header of the page.	
On pages 5 and 6, did the learner add the page numbering to the header of the page? Note: Make sure the page numbering is centre aligned, and the page numbering should be 6 and 7.	
On pages 5 and 6, is there still page numbering in the centre of the footer?	
Did the learner save the document in the correct Word format?	



Activity 4.5

Memorandum

Complete the following activity on your own.

1. Apply numbering to text.
  - Open a blank Word document.
  - Open the document *Act4.5(Pollute)*, copy the text from “Pollution is the addition” to the first occurrence of “Soil Pollution” paste it unformatted.
  - Select the text from the words “Air and Sound Pollution” to the words “Soil Pollution”.
  - Apply the following numbering: Bold numbered list 1), 2), 3), with a left and right indentation of 0 cm, that hangs by 0,63 cm.
  - Save *PolluteNumbering* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner copy the correct text from <i>Act4.5(Pollute)</i> unformatted?	
Did the learner apply the correct numbering style (i.e. 1), 2), 3), etc) to the correct text?	
Did the learner apply the following format to the numbering style: font style: Bold; left indentation: 0 cm; right indentation: 0 cm; Hanging: 0,63 cm?	
Did the learner save the document in the correct Word format?	

2. Apply bulleting to text.
  - Open a blank Word document.
  - Open the document *Act4.5(Pollute)*, copy the text from “Water pollution is the introduction” to the first occurrence of “must be effectively controlled” paste it unformatted.
  - Select the text from the words “Examples of Water Pollution” to the words “must be effectively controlled”.
  - Apply the black square bulleting. Make sure the bulleting has a left and right indentation of 0 cm, that it hangs by 0,63 cm.
  - Then indent all the text under the words “Examples of Water Pollution” and above the words “Control Measures”.
  - Also indent all the text below the words “Control Measures”.
  - Further indent the paragraphs below the following words:
    - “Industrial Effluent”
    - “Mining and Agricultural Wastes”
    - “Sewage Disposal and Domestic Wastes”
    - “The following measures can be used to stop water pollution:”
  - The first bulleting level must have black square bullets.
  - The second bulleting level must have black circle bullets.
  - The third bulleting level must have arrows.
  - Save the document as *PolluteBulleting* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner copy the correct text from <i>Act4.5(Pollute)</i> unformatted?	
Did the learner apply the black square bulleting style to the first level bulleting?	
Did the learner apply the black square bulleting to the sentences? “Examples of Water Pollution”; and “Control Measures”?  Note: Make sure the first level bulleting list has a left and right paragraph indentation of 0 cm, that hangs by 0,63 cm.	
Did the learner apply the black circle bulleting style to the second level bulleting?	

2. ... continued

Criteria	Yes/No
Did the learner apply the black square bulleting to the sentences? “Industrial Effluent”; “Mining and Agricultural Wastes”; “Sewage Disposal and Domestic Wastes”; and “The following measures can be used to stop water pollution:”? Note: Make sure the learner single-indented sentences that were part of the second bulleting list level.	
Did the learner apply the arrow bulleting style to the third level bulleting?	
Did the learner apply the arrow bulleting to the paragraphs beginning with: “Water is discharged from...”; “Mines, especially gold and...”; “Sewage as well as domestic”; “every person should be”; and “by research and legislation”? Note: Make sure the learner double-indented sentences/paragraphs that were part of the third bulleting list level.	
Did the learner save the document in the correct Word format?	

3. Change and apply a new multi-list levelling.

- Open a blank Word document.
- Open *Act4.5(Fynbos)* and copy the text from “Twenty-six species of fynbos plants” to “Care for the Earth Day” unformatted.
- Select the text from “The promotion of public” to “Care for the Earth Day” and do the following:
  - Apply a first level numbering style to the first three sentences (1 – 3).
  - Apply a second level numbering style to the next three sentences (4 – 6).
  - Apply a first level numbering style to the next two sentences (7 – 8).
  - Apply a second level numbering style to the next sentence (9).
  - Apply a third level numbering style to the next two sentences (10 – 11).
  - Apply a fourth level numbering style to the remaining sentences (12 – 13).
- The first level must be as follows:
  - Numbering style: 1, 2, 3; Times New Roman; Left; text indent: 0,63 cm; aligned at: 0 cm.
- The second level must be as follows:
  - Numbering style: 1.1, 1.2, 1.3; Font: Times New Roman; Alignment: Left; Text indent: 0,63 cm; Aligned at: 0,63 cm.
  - The third level must be as follows:
    - Numbering style: a, b, c; Font: Times New Roman; Alignment: Left; Text indent: 0,63 cm; Aligned at: 1,1 cm; Font colour: Purple; Font style: Italic.
- The fourth level must be as follows:
  - Numbering style: i, ii, iii; Font: Calibri; Alignment: Left; Text indent: 1 cm; Aligned at: 1,5 cm; Font style: All caps; Font size: 8 pt.
- Save your document as *FynbosNumbering* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner copy the correct text from <i>Act4.5(Fynbos)</i> unformatted?	
Did the learner modify the first list level as follows: Numbering style: 1, 2, 3; Times New Roman; Left; text indent: 0,63 cm; aligned at: 0 cm?	
Did the learner apply the first list level to the correct sentences: 1, 2, 3, 7 and 8? Note: These lines numbering should be 1, 2, 3, 4 and 5.	

3. ... continued

Criteria	Yes/No
Did the learner modify the second list level as follows: Numbering style: 1.1, 1.2, 1.3; Font: Times New Roman; Alignment: Left; Text indent: 0,63 cm; Aligned at: 0,63 cm?	
Did the learner apply the second list level to the correct sentences: 4, 5, 6 and 9? Note: These lines numbering should be 3.1, 3.2, 3.3 and 5.1.	
Did the learner modify the third list level as follows: Numbering style: a, b, c; Font: Times New Roman; Alignment: Left; Text indent: 0,63 cm; Aligned at: 1,1 cm; Font colour: Purple; Font style: Italic?	
Did the learner apply the third list level to the correct sentences: 10 and 11?	
Did the learner modify the fourth list level as follows: Numbering style: i, ii, iii; Font: Calibri; Alignment: Left; Text indent: 1 cm; Aligned at: 1,5 cm; Font style: All caps; Font size: 8 pt?	
Did the learner apply the fourth list level to the correct sentences: 12 and 13?	
Did the learner save the document in the correct Word format?	

4. Change line spacing.

- Open a blank Word document.
- Import the content from the document *Act4.5(Ruga)* unformatted.
- Select all the text and change the line spacing as follows: Before: 0 pt; After: 12 pt; At least: 20 pt line spacing.
- Change the spacing for the Normal style as follows: Before: 0 pt; After: 8 pt; Single line spacing.
- Re-apply the Normal style to the text from “Bursting with eclectic multicultural” to “Venice Biennale in 2013.”
- Save *RugaLineSpacing* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner import the text from <i>Act4.5(Ruga)</i> unformatted?	
Did the learner apply the line spacing of: Before: 0 pt; After: 12 pt; At least: 20 pt line spacing, to the first and last paragraph?	
Did the learner change the Normal style to: Before: 0 pt; After: 8 pt; Single line spacing?	
Did the learner re-apply the modified Normal style to the second and third paragraphs?	
Did the learner save the document in the correct Word format?	

5. Change the line spacing of a new style.

- Open a blank Word document.
- Import the content from the document *Act4.5(Ruga)* with its original format.
- Change the Thick Normal style's as follows: Before: Auto; After: 18 pt; Multiple line spacing of 1,5 cm.
- Select the text from “Athi-Patra Ruga was” to “becoming a hybrid construct.”.
- Format the text as follows: Font colour: Red; Font size: 11 pt; Font style: Bold italic; Before: 2 pt; After: 2 pt; 1,5 lines spacing.
- Save this new style as ‘Small Red Thick’.
- Save *RugaLSpacing* and close the document.

Answer: Use the following checklist as an assessment guideline:

Criteria	Yes/No
Did the learner import the text from <i>Act4.5(Ruga)</i> with its original formatting?	
Did the learner change the Normal Thick style as follows: Before: Auto; After: 18 pt; Multiple line spacing of 1,5 cm?	
Did the learner save the format style: Font colour: Red; Font size: 11 pt; Font style: Bold italic; Before: 2 pt; After: 2 pt; 1,5 lines spacing, as ‘Small Red Thick’?	

5. ... continued

Criteria	Yes/No
Did the learner apply the Small Red Thick style to the correct text (i.e. the first two paragraphs)?	
Did the learner apply the modified Normal Thick style to the correct text (i.e. the last two paragraphs)?	
Did the learner save the document in the correct Word format?	

6. Insert columns.

- Open a blank Word document.
- Create two columns.
- Import the content from *Act4.5(Global)* in its original formatting.
- Add a column break after the words “social, political and cultural positions”.
- Add a next page section break before the words “Insert linked object”.
- Select the text from the words “Travel tips & planning info” onwards and apply a three-column layout.
- Save the document as *GlobalColumns* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner import the text from <i>Act4.5(Global)</i> with its original formatting?	
Did the learner add a column break after the words “social, political and cultural positions.”?	
Did the learner add a next page section break before the words “Insert linked object”?	
Did the learner apply a three-column layout from the text starting from the words “Travel tips & planning info” onwards?  Note: If the learner did this properly, a continuous section break should appear before the words “Travel tips & planning info”.	
Did the learner save the document in the correct Word format?	

7. Modifying columns.

- Open a blank Word document.
- Import the content from *Act4.5(Global)*.
- Insert a page break after the words “Willie Bester, Athi-Patra Ruga and David Koloane.”
- Insert a continuous section break after the words “to examine the process of art-making itself.”.
- Select the text from the words “There are also a number of exiting” to “to examine the process of art-making itself.” and do the following:
  - Apply the right column layout.
  - Change the line spacing of the text to 2.0 cm.
  - Change the column spacing as follows: Width of column 1: 9 cm; Spacing: 2 cm; add a line between the columns.
- Save the document as *GlobalModColumns* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner import the text from <i>Act4.5(Global)</i> with its original formatting?	
Did the learner insert a page break after the words “Willie Bester, Athi-Patra Ruga and David Koloane.”?	
Did the learner insert a continuous section break after the words “to examine the process of art-making itself.”?	

7. ... continued

Criteria	Yes/No
Did the learner apply the right column layout to the correct text? Note: It is the text from the words “There are also a number of exiting” to “to examine the process of art-making itself.”	
Did the learner change the line spacing of the correct text to 2.0 cm?	
Did the learner change the column spacing of the correct text as follows: Width of column 1: 9 cm; Spacing: 2 cm; add a line between the columns?	
Did the learner save the document in the correct Word format?	

1. Open the *Chapter 4\_Revision Activity 1* word processing document and do the following:
  - a. Apply any theme to the document and add a cover page with the text “Happy St Patrick’s Day” as the title. (4)
  - b. Add your name in the author control. Add the date field in the format 01-Jan-17 anywhere on the page. (4)
  - c. Add a header to the document. Insert the “Blank” header style. Change the header’s font colour to red, bold and 14 pt. The header must contain the Filename. (6)
  - d. Insert automatic page numbering at the bottom of the page as follows: (6)
    - i. The first page must NOT be numbered.
    - ii. Odd pages must be right aligned, and even pages left aligned to the footer.
  - e. In the sections “Common traditions include” and “Worldwide St. Patrick’s Day Parades and Celebrations” make the text a bullet list. (2)
  - f. Under “Common traditions include” add a second level to the first bullet listing the cities that hold large parades. (2)
  - g. Add a section break between “The History of St. Patrick’s Day and why it’s celebrated” and “Worldwide St. Patrick’s Day Parades and Celebrations”. (1)
  - h. Take the text under “The History of St. Patrick’s Day and why it’s celebrated” and convert it to two columns with a line between. Set the width of the columns to 6.5 cm. Save and close the document. (4)
2. Open the *Chapter 4\_Revision Activity 2* word processing document.
  - 2.1 Format the first two paragraphs in the document as follows:
    - a. Change the line spacing of the first paragraph in the document to Double (1)
    - b. Indent the FIRST line of the second paragraph to 2 cm. (1)
  - 2.2 Change all the paragraphs of the document to a bulleted list. Apply bullets as follows:
    - a. Insert the 4Gold image as a bullet. (2)
    - b. Align the bullet 0.5 cm from the margin. (1)
    - c. Set the text indent at 2 cm. (1)

*Answer: Use the following checklist as an assessment guideline:*

	Criteria	Total marks
1.a.	Any theme applied to document ✓ ✓ Cover page with 'Happy St Patrick's Day' added ✓ ✓	
b.	Author name in properties changed to learner's name. ✓ ✓ Date field added in correct format ✓ ✓	
c.	Header applied ✓ Blank header style ✓ Font colour red, bold and 14 pt ✓ ✓ ✓ Header contains document title ✓ ✓	
d.	Page numbering has been inserted in the footer ✓ ✓ First page not numbered ✓ ✓ Odd page numbers are right-aligned ✓ Even page numbers are left-aligned ✓	
e.	Text has been made a bullet list under: 'Common traditions include' ✓ 'Worldwide St Patrick's Day Parades and Celebrations' ✓	

	Criteria	Total marks
f.	A second level to the first bullet listing the cities that hold large parades has been added under 'Common traditions include' ✓ ✓	
g.	Section break added between 'The History of St. Patrick's Day and why it's celebrated' and 'Worldwide St. Patrick's Day Parades and Celebrations' ✓	
h.	Text converted into 2 columns ✓ ✓ Line between ✓ Width 6.5 ✓	
2.1 a.	Change the line spacing of the first paragraph in the document to Double. ✓	
b.	Indent the FIRST line of the second paragraph to 2 cm. ✓	
2.2 a.	Insert the 4Gold image as a bullet. ✓ ✓	
b.	Align the bullet 0.5 cm from the margin. ✓	
c.	Set the text indent at 2 cm. ✓	

TOTAL: [35]



# ELECTRONIC FORMS

## CHAPTER OVERVIEW

Unit 5.1 Electronic forms

Unit 5.2 Online/offline help

The following learning outcomes are covered by this chapter: 

- Create and manage fillable electronic forms.
- Troubleshoot common Microsoft Word problems and access the Help functions.

GRADE: 11

DATE:

TEACHING TIME: 2.4 hours

### Resources

Each learner should have access to:

- CAT 10 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

Learners will learn to create forms in word processing documents that allows users to fill in certain fields. They will also find out how to solve common word processing problems.

Questionnaires are powerful instruments to gather information from people. Questionnaires are emailed to respondents to fill in electronically. MS Word allows a user to include text boxes, dropdown lists, checkboxes and other form field controls in his/her document.



## Activity 5.1

## Memorandum

1. Create a form.
  - a. Open a blank document.
  - b. Add the following fields:
    - Add a first name field. Add form field shading.
    - Add a surname field. Limit this field to 20 characters and add form field shading.
    - Add a date field. Use the YYYY/MM/DD format and add form field shading.
  - c. Create FIVE yes or no questions and add a check box at the end of these questions.
  - d. Create THREE questions with a limited amount of possible answers. Hint: Use the drop-down list.
  - e. Add a simple signature line at the bottom.
  - f. When you are done, add a password of 123 to restrict editing.
  - g. Save the document as *Act5.1\_Q1(YourName)* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner add a First name text field? Note: He/she should have written something like 'Name:' or 'First name:' before the text field?	
Did the learner add a Surname text field? Note: He/she should have written something like 'Surname:' or 'Last name:' before the text field?	
Did the learner add a character limit of 20 to the surname text field?	
Did the learner add a Date text field? Note: He/she should have written something like 'Date:' or 'Date filled in:' before the date text field?	
Did the learner use the correct format for the date text field (i.e. YYYY/MM/DD)?	
Did the learner create five decent yes or no questions that could be answered by a check box?	
Did the learner create three decent questions that could be answered by the options supplied in the relevant drop-down list?	
Did the learner add a signature line at the bottom of the page?	
Did the learner add form field shading to the first name field's text box, the surname field's text box and to the date field's text box?	
Did the learner restrict the document to only allow the form fields to be filled in? Note: The teacher should be able to use the password '123' to unlock this restriction, so that he/she can edit the document again.	
Did the learner save the document in the correct Word format?	

2. Edit a form.
  - a. Open a blank Word document.
  - b. Open the *Act5.1(School)* document and copy and paste the 'Electricity Usage: Survey Form' on the last page, with its original formatting.
  - c. Change the Name field to a drop-down list field. Create THREE possible name options, but one of them should be your real name.
  - d. Change the Surname field to a drop-down list field. Create THREE possible surname options, but one of them should be your real surname.

- e. Change the Age field to a Number text field.
- f. Restrict the Age field to THREE characters.
- g. Add a date field that does not update automatically.
- h. Add the following extra fields:
  - i. Add an ID number text field. Restrict the field to ten characters.
  - ii. Add a Gender check box field.
  - iii. After the “How would you describe your usage of electricity?” question, insert a Frame around the blue highlighted text, expand the frame and position it under the question.
- j. When you are done, add a password of 123 to restrict editing.
- k. Save the document as *Act5.1\_Q2(YourName)* and close the document.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Did the learner copy the correct text from the <i>Act5.1(School)</i> document with its original formatting?	
Did the learner change the Name text field to a drop-down list field?	
Did the learner add three options for the Name drop-down box field? Note: One of the three options should be the learner’s real name.	
Did the learner change the Surname text field to a drop-down list field?	
Did the learner add three options for the Surname drop-down box field? Note: One of the three options should be the learner’s real surname.	
Did the learner change the Age text field to a number text field?	
Did the learner change the maximum length of the Age number text field to three?	
Did the learner change the Date text field from ‘Current date’ to ‘Date’?	
Did the learner add an ID number text field? Note: He/she should have written something like ‘ID number:’ before the text field?	
Did the learner change the maximum length of the ID number text field to ten?	
Did the learner add a Gender check box field? Note: He/she should have written something like ‘Male:’ and then a checkbox, followed by ‘Female’ and then a checkbox? The learner should also have written something like ‘Gender’ before the check box options.	
After the “How would you describe your usage of electricity?” question, did the learner insert a frame around the blue highlighted text.	
Did the learner increase the size of the frame, and reposition it below the question “How would you describe your usage of electricity?”?	
Did the learner restrict the document to only allow the form fields to be filled in? Note: The teacher should be able to use the password ‘123’ to unlock this restriction, so that he/she can edit the document again.	
Did the learner save the document in the correct Word format?	

3. When you use the online help function, what are the first TWO results that appear for:  
(Note: You will need an internet connection to use this.)

- A. Background colour
- B. Forms
- C. Break
- D. Data tool

*Answer: A. Change the background colour in Word, apply shading to words or paragraphs; B. Create a fillable form, create forms that users complete or print in Word; C. Insert a section break, Delete a section break; D. Remove hidden data and personal information by inspecting . . . , Learning tools in word*

A draft version of the electronic entry form for learners who would like to attend workshops has been created.

1. Open the *Chapter 5\_Revision Activity 1* word processing document.

Personal Information	
* SURNAME	<input type="text"/>
* FIRST NAMES IN FULL	<input type="text"/>
* GENDER	<input type="text" value="Male"/>
* ID NUMBER	<input type="text"/>
* DATE OF BIRTH (YYYY/MM/DD)	<input type="text"/>
Contact Information	
* TELEPHONE (HOME)	<input type="text"/>
* TELEPHONE (CELL)	<input type="text"/>

The form uses Legacy Form controls. Some form field controls have been added to the form already. Change the form as follows:

- a. Set and apply appropriate tabs to align the form controls and the labels under the headings 'Personal Information' and 'Contact Information' as follows:
    - i. The first tab is set at 1 cm. (2)
    - ii. The second tab is set at 11 cm. (2)
  - b. Add the items 'Male' and 'Female' to the drop-down form field next to the word 'GENDER'. (2)
  - c. Add an appropriate form field control next to the text 'ID NUMBER'. This field should only accept 13 characters. (2)
  - d. Format the text form field control next to the text 'DATE OF BIRTH' to allow only dates with the format YYYY/MM/DD. (2)
  - e. Add a control next to the text 'WEDNESDAY' that will be similar to the one above it in the form. (1)
- NOTE: Do NOT lock or protect the form.
2. Open the *Chapter 5\_Revision Activity 2*.
    - a. Format the electronic form at the end of the document to appear as follows:

## INFORMATION

**Complete the form if you are interested in signing up for an additional subject.**

Today's date:	<input type="text" value="10 May 2019"/>
School:	<input type="text"/>
Name:	<input type="text"/>
Surname:	<input type="text"/>
Gender:	<input type="text" value="Male"/>
Grade:	<input type="text" value="12"/>
ID Number:	<input style="width: 100px;" type="text"/>
<b>Additional Subject:</b>	
CAT	<input type="checkbox"/>
Tourism	<input type="checkbox"/>
Signature:	<input style="width: 200px;" type="text"/>

NOTE: Make use of the Legacy Form fields.

- b. Switch the Form Field Shading function of the application on. (2)
- c. Add a Drop-down Form Field to the right of the word "Title" with the following options Mr, Mrs, Ms and Dr. (2)
- d. Add Check Box Form Fields to the left of the words "CAT" and "Tourism". (2)
- e. Format the Text Form Field next to the heading "Today's date" as follows:
  - i. Change the Type to Current date (1)
  - ii. and the format to YYYY-MM-DD. (1)
- f. Change the property of the Text Form Field for "Child's name" so that the name will automatically appear in uppercase when the user enters a name in the field. (1)
- g. Insert a table for the ID number next to the heading "ID Number". The table must have 13 columns and 1 row and the columns must be 0.5 cm wide. (3)
- h. Add a leader tab next to the word "Signature". The leader tab must start at 6 cm and end at 14 cm. Use a solid line for the leader tab. (3)
- i. Place a 3 pt wide double-line page border around the page. (2)
- j. Add your name to the author property of the document. (2)

Answer: Use the following checklist as an assessment guideline:

	Criteria	Total marks
1.1	The first tab is set at 1 cm ✓✓ The second tab is set at 11 cm. ✓✓	
1.2	The items MALE and FEMALE added to the drop-down form field next to GENDER ✓✓	
1.3	Limited form field control added next to ID NUMBER ✓ Field only accepts 13 characters ✓	
1.4	Text form field control next to DATE OF BIRTH only allows dates with the format YYYY/MM/DD ✓✓	
1.5	Control next to WEDNESDAY matches the one above it ✓	
2.1	Form field shading function turned on ✓✓	
2.2	Drop down field added ✓ Options are Mr, Mrs, Ms and Dr ✓	
2.3	Check box form fields added to the left of CAT and Tourism ✓✓	
2.4	Type changed to Current date and format is YYYY-MM-DD ✓✓	
2.5	Field property changed to make text automatically uppercase ✓	
2.6	A table for the ID number is inserted next to the heading "ID Number" ✓ The table has 13 columns and 1 row and ✓ the columns are 0.5 cm wide. ✓	
2.7	Leader tab is added Leader starts at 6 cm and ends at 14 cm ✓ Solid line is used ✓	
2.8	3 pt wide, double-lined page border is around second last page only ✓✓✓	
2.9	Learner's name added to author property ✓✓	

TOTAL: [30]

CHAPTER OVERVIEW 

## Unit 6.1 Editing or creating styles

The following learning outcomes are covered by this chapter: 

- Describe the difference between templates and styles.
- Edit or change a style.
- Create a new style.
- Apply heading and paragraph styles.

GRADE: 11

DATE:

TEACHING TIME: 4 hours

## Resources

Each learner should have access to:

- CAT 10 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

Styles are an easy way to quickly and consistently add formatting to Word documents. In this chapter learners will learn about styles and how to create their own styles. They will also learn how to edit existing styles.



## Activity 6.1

## Memorandum

1. Open *Act6.1(Pollute).docx*.
  - a. Edit the style 'Heading 1' as follows:
    - i. Format the font to all caps.
    - ii. Make the text bold
    - iii. Change the font to Arial, 16 pt
  - b. Edit the style 'Heading 2' as follows:
    - i. Change the font to Arial, 14 pt
    - ii. Make the text bold and underlined
    - iii. Format the text to be green
  - c. Edit the style 'Heading 3' as follows:
    - i. Format the text to be blue
    - ii. Make the font Arial, 11 pt and bold
  - d. Edit the style 'Normal' as follows:
    - i. Make the text Arial, 11 pt

Criteria	Yes/No
Has Heading 1 been edited so that: The font is all caps The text is bold The font is Arial, 16 pt	
Has Heading 2 been edited so that: The font is Arial, 14 pt The text is bold and underlined The text is green	
Has Heading 3 been edited so that: The text is blue The font is Arial 11 pt	
Has Normal been edited so that: The text is Arial, 11 pt	



## Activity 6.2

## Memorandum

1. Open *Act6.2(Pollution).docx*. Create a new style as follows:
  - a. Base the style on 'Heading 1'.
  - b. Centre the text horizontally.
  - c. Apply any type of paragraph border.
  - d. Apply the new style to the heading in the document.

Criteria	Yes/No
Has the style been based in Heading 1?	
The text is centred horizontally	
A paragraph border has been applied	
Style has been applied to a new heading in the document	

1. Open the document *Chapter 6\_Revision Activity* word processing document. and do the following:
  - 1.1 Type your name and surname in the document subtitle of the cover page.  
Change the font colour to dark blue. (3)
  - 1.2 Apply a double-line 2 pt page border that does not include the first page. (3)
  - 1.3 Create new styles for the following headings. Use different font styles/sizes, colours, effects and spacing. (4)
    - a. Create a style for a Heading 1 and apply it to all text marked with **h1**. (4)
    - b. Create a style for Heading 2 and apply it to all text marked **h2**.  
The style must be visually different from the Heading 1 style. (4)
    - c. Create a style for Heading 3 and apply it to all text marked **h3**.  
The style must be visually different from both the Heading 1 and Heading 2 styles. (4)
    - d. Modify the Normal style as follows:
      - i. Change the font to Arial and the font size to 12 pt. (2)
      - ii. Change the spacing before and after to 3 pt. (2)
      - iii. Make the line spacing Multiple at 1.15. (2)
  - 1.4 Change the height of the picture on page 2 to exactly 5 cm and apply any art border of your choice. (3)
  - 1.5 Use a formula to calculate the total of the Precious Metals Production 2015 in the space provided on the table on page 2. (3)

	Criteria	Total marks
1.1	Cover page: Name and surname in subtitle ✓ Font colour dark blue ✓✓	
1.2	Page border: double line, 2 pt and does not include first page ✓✓✓	
1.3	A heading 1 style has been created and applied to all text marked h1 ✓✓✓✓ A heading 2 style has been created and applied to all text marked h2 ✓✓✓✓ A heading 3 style has been created and applied to all text marked h3 ✓✓✓ Visible difference between H1, H2 and H3 styles ✓ Normal style is: Arial 12 pt ✓✓ Line spacing is 3 pt before and after ✓✓ Line spacing is Multiple at 1.15 ✓✓	
1.4	Picture: Height 5cm ✓ Art border ✓✓	
1.5	Formula used: =SUM(ABOVE) in space provided ✓✓✓	

TOTAL: [30]



# MAILINGS AND REFERENCES

## CHAPTER OVERVIEW

Unit 7.1 Mailings

Unit 7.2 Reference

The following learning outcomes are covered by this chapter: 

- Use Mail Merge for letters and labels.
- Use the referencing features to add captions, footnotes, citations, bibliographies, indexes and tables of contents.

**GRADE:** 11

**DATE:**

**TEACHING TIME:** 3 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

Learners will learn about how to do a mail merge to create personalised letters and labels. And will learn about the referencing tools in Word and how to use them. These tools include:

- Captions
- Footnotes
- Citations and bibliographies
- Tables of contents.



## Activity 7.1

## Memorandum

1. Open *Act7.1(Letter).docx* and prepare a letter mail merge as follows:
  - a. Use the spreadsheet *Act7.1(Letter).xlsx* as the data source.
  - b. Use the More items option to add a name and address to the letter.
  - c. Complete the merge and save the new merged document as *Act7.1(Merged\_letter).docx*.
2. Open *Act7.1(Letter).docx* and prepare a label mail merge as follows:
  - a. Use the spreadsheet *Act7.1(Letter).xlsx* as the data source.
  - a. Add the merge field Address block.
  - a. Complete the merge and save the new merged document as *Act7(Merged\_labels).docx*.

*Use the following checklist as an assessment guideline.*

Criteria	Yes/No
Has the learner...	
Used <i>Act7.1(Letter).xlsx</i> as data source?	
Used the More items option to add a Name and Address?	
Completed the merge and saved the new document as <i>Act7.1(Merged_letter).docx</i> ?	
Used <i>Act7.1(Letter).xlsx</i> as data source?	
Added the merge field Address block?	
Completed the merge and saved the new document as <i>Act7.(Merged_labels).docx</i> ?	



## Activity 7.2

## Memorandum

1. Open *Act7.2(Pangolins).docx*.
    - a. Insert a table of contents after the cover page.
    - b. Use the default style.
    - c. Show two levels of headings.
- Save document as *Act7.2(TOC)* and close the document.  
Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner...	
Inserted a table of contents after the cover page?	
Used the default table of contents style?	
Shown two levels of headings?	



## Activity 7.3

## Memorandum

1. Open *Act7.3(Pangolins).docx*.
    - a. Find the text 'Philidota' under heading 1 'Introduction'.
    - b. Insert a footnote on the text as follows:
      - The footnote must be on the same page as the text.
      - Use the letter "a", as the footnote symbol.
    - c. Add the text 'From the Greek word pholis, meaning horny scale' as the footnote text.
- Save document as *Act7.3(Footnote)* and close the document.  
Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner...	
Inserted the footnote on the same page as the text?	
Used the letter a for the footnote symbol?	
Added the text correctly?	



## Activity 7.4

## Memorandum

1. Open *Act7.4(Pangolins).docx*.
    - a. Add captions to the four images in the text as follows:
      - Images must use the label Figure and have a number (for example, Figure 5).
    - b. Add a table of figures after the table of contents
- Save the document as *Act7.4(Captions)* and close the document.  
Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner...	
Added captions to the 4 images in the text?	
Given images the label Figure and have a number?	
Added a table of figures after the table of contents?	



### Activity 7.5

### Memorandum

1. Open *Act7.5(Pangolins).docx*.
  - a. Add the 5 items as sources.
    - Make sure that you use the correct format for each source (indicated in bold and square brackets next to each source).
    - Sources must use the Harvard referencing style.
  - b. Find the placeholders in the text for each source and add an in-text citation.  
Save the document as *Act7.5(Sources)* and close the document.  
*Use the following checklist as an assessment guideline*

Criteria	Yes/No
Has the learner...	
Added the five items as sources?	
Used the correct format for each source (indicated in bold and square brackets next to each source)?	
Used the Harvard referencing style?	
Found the placeholders in the text for each source and added an in-text citation?	



### Activity 7.6

### Memorandum

1. Open *Act7.6(Pangolins).docx*.
  - a. Insert a new bibliography under 'References' on the last page.
    - i. If the word "References" are repeated once you have inserted the bibliography, you can remove the original.
    - ii. Remember to update the Table of Contents once the Bibliography has been added to the document.

*Save as Act7.6(Bibliography) and close the document.*  
*Use the following checklist as an assessment guideline*

Criteria	Yes/No
Has the learner...	
Inserted a new bibliography?	
Remembered to update the table of contents?	



### Activity 7.7

### Memorandum

1. 1. Open *Act7.7(Pangolins).docx*.
  - a. Mark the following words in the text as items for the index:
    - i. Africa
    - ii. Poaching
    - iii. Scale
    - iv. Tongue
  - b. Insert an index after your references.  
*Save as Act7.7(Index) and close the document.*  
*Use the following checklist as an assessment guideline*

Criteria	Yes/No
Has the learner...	
Marked the words in the text for indexing?	
Added an index after the references?	

1. Open the *Chapter 7\_Revision Activity 1* word processing document. Do the following:
  - a. Set the top and right margins of the document to 2 cm. (2)
  - b. A cover page was inserted, but all the fields were not completed:
    - i. Move the heading highlighted in green (page 3) to the document title position. (1)
    - ii. Display today's date in the appropriate field on the cover page. (1)
  - c. Create an automatic table of contents on the second page as indicated. Do the following before inserting the table of contents:
    - i. Apply the 'Heading 2' style to all headings highlighted in blue. (2)
    - ii. Modify all headings formatted as 'Heading 3' (highlighted in yellow) to display 7 pt before and 5 pt after each heading. (2)
    - iii. Create a new heading style by following the instructions below:
      - Base the new style on 'Heading 1'.
      - The new style is called 'STEM'.
      - The font must not be expanded. (3)
    - iv. Insert the table of contents to display all three heading levels. (3)
  - d. Find the pictures on page 4. Do the following:
    - i. Insert a caption below the second picture indicating the following: 'Figure 2 SA Rural education'. (2)
    - ii. Insert a table of figures on page 2. (2)
  - e. Make the following changes to the document:
    - i. Add I. Pieterse as the author of the source 'Maths-and-science (2014)'. (2)
    - ii. Add a citation after the last word ('...skills.') in the document to acknowledge the source 'The 10 Skills Employers Most Want In 2015 Graduates'. (2)
    - iii. Insert a bibliography at the end of the document. Make sure the format is APA. (2)
2. Open the *Chapter 7\_Revision Activity 2* word processing document. Do the following:
 A letter will be sent to the parents of the learners who scored less than 30% for either Mathematics or Physical Science. Use the data from the spreadsheet *7Marks.xls* and prepare a mail merge as follows:
  - Sort the learners in ascending order according to their surnames.
  - Replace all the text between '<< ... >>' with the appropriate fields.
  - Only include learners who scored less than 30% for either Mathematics or Physical Science.
  - Save the document.
  - Complete the merge.
  - Save the merged document as *7Letter\_Merged*. (6)

Use the following as an assessment guideline

	Criteria	Total marks
c.i.	Heading 2 style applied to 4 headings. ✓	
c.ii.	Heading 3 style modified: 7 pt before and ✓ 5 pt after each heading. ✓	
c.iii.	New heading style: Based on Heading 1 ✓ is called STEM ✓ The font not expanded - normal ✓	
c.iv.	Table of contents inserted ✓ display ONLY headings to include level 3: ✓ ✓	
d.i.	Caption ✓ 'Figure 2 SA Rural education'. ✓	

	Criteria	Total marks
d.i9i.	Table of contents inserted on page 2 ✓ ✓	
e.i.	Name of the author, I. Pieterse, added to 'Maths-andscience' source ✓ ✓	
e.ii.	Citation added (Adams, 2014) at the end of document ✓ ✓	
e.iii.	Bibliography added ✓ bibliography at the end of document APA sixth edition format ✓	
2.	Merge: Merge fields (all four) appear ✓ Sorted in ascending order ✓ of Surname ✓ Mathematics marks < 30% selected ✓ Physical Science marks < 30% selected ✓ Merge completed (7Letter_Merged) ✓	

TOTAL: [30]

## SPREADSHEET FORMATTING

CHAPTER OVERVIEW 

Unit 8.1 Advanced formatting

Unit 8.2 Advanced formulas and functions

Unit 8.3 Error indications

The following learning outcomes are covered by this chapter: 

- Apply conditional formatting to cells.
- Use the AutoFill options.
- Use absolute cell referencing to keep a row or column constant.
- Describe spreadsheet functions.
- Apply the ROUND, SMALL, COUNTIF, COUNTA, COUNTBLANK, LARGE functions to cells.
- Demonstrate how to round numbers.
- Discuss the difference between rounding and formatting.
- Describe the circular reference and #NULL! error indicators.

GRADE: 11

DATE:

TEACHING TIME: 12 hours

## Resources

Each learner should have access to:

- CAT 10 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

Excel is one of the most powerful tools in the Microsoft Office Suite, and learning to use it properly is always beneficial. Excel is used in a wide range of professions, from teachers who use it to calculate term marks to finance professionals who use it to keep track of complex and important financial data.

Excel's built in tools make it easier for users to do simple and complex mathematics, organise, arrange and display data, analyse data and make predictions based on that data, etc.



## Activity 8.1

## Memorandum

Work in the *Learners* worksheet of *Act8.1(Report).xlsx*.

1. Apply conditional formatting to Column G so that all cells showing learners that have reported bullying:
  - a. Appear in a light grey fill.
  - b. Have a green border.
2. Apply conditional formatting to Column D so that all cells showing learners younger than 17 appear in:
  - a. A red fill, and learners older than 17 appear in
  - b. a green fill with a blue border.
3. Edit the conditional formatting rules for Column E so that all cells showing learners from the B group appear in:
  - a. purple

*Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Has the learner...	
Column G	
Applied conditional formatting so that cells have a light grey fill?	
Applied conditional formatting so that cells have a green border?	
Column D	
Applied conditional formatting so that cells have a red fill?	
Applied conditional formatting so that cells have a green fill with a blue border?	
Column E	
Applied conditional formatting so that cells have a purple fill?	



## Activity 8.2

## Memorandum

Open the file *Act8.2(Autofill)* and work on the *Incident* worksheet. Use AutoFill to complete the following columns for each person:

- Column A: So that we can see how many entries there are to the worksheet
- Column E: A unique code is created for every person
- Also, complete:
- Column N: Months of the year
- Column O: Days of the week
- Column P: Create a custom list so when the AutoFill feature is used, the nine South African provinces are shown based on the data in the Custom List sheet.

*Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Has the learner...	
Used AutoFill to complete:	
Column A	
Column E	
Column N	
Column O	
Column P	
Made sure that the fill is sequential?	





Open *Act8.3(Club).xlsx* and work in the *Music* sheet.

1. Change the function in:

- cell H2 so that it can be copied into cells H3:H17 and still give the correct results as in the current cells.
- cell F2 so that it can be copied into cells F3:F17 and still give the correct results as in the current cells.
- cell L2 so that it can be copied into cells L3:L17 and still give the correct results for all the years.

*Answer: Use the following checklist as an assessment guideline:*

Criteria	Yes/No
Has the learner...	
Changed the function in H2 to be =G2*\$L\$19	
Changed the function in F2 to be =CONCATENATE(\$F\$1;RIGHT(D2;2);";";LEFT(C2;3);E2)	
Changed the function in L2 to be =COUNTIF(&D\$2:\$D\$612,K2)	



## Activity 8.4

### Memorandum

Open *Act8.4(Rain).xlsx* and work in the *Rain* spreadsheet.

1. Insert a function in cell G48 to determine the total rainfall for April.
2. Insert a function in cell H49 to determine how many times no rain fell in May.
3. Insert a function in cell K50 to determine the highest rainfall in August.
4. Insert a function in cell M51 to determine the lowest rainfall in October.

*Use the following checklist as an assessment guideline*

Criteria	Yes/No
Has the learner...	
Inserted a function in cell G48 to determine the total rainfall for April. =SUM(G3:G46)	
Inserted a function in cell H49 to determine how many times no rain fell in May. =ROUNDUP(AVERAGE(H3:H46),0)	
Inserted a function in cell K50 to determine the highest rainfall in August. =LARGE(K3:K46,3)	
Inserted a function in cell M51 to determine the lowest rainfall in October. =MIN(M3:M46)	



## Activity 8.4

### Memorandum

Open *Act8.5(Data Errors).xlsx*. Click *OK* on the error message that opens.

1. Determine why the #NULL! error is in some cells and correct it.
2. Correct the circular references.

*Use the following checklist as an assessment guideline*

Criteria	Yes/No
Has the learner...	
Identified the missing operators and corrected the error in B22?	
Identified the missing operators and corrected the error in F22?	
Identified the missing operators and corrected the error in K22?	
Identified the missing operators and corrected the error in M22?	
Identified the missing operators and corrected the error in N2?	
Identified the missing operators and corrected the error in N5?	
Identified and corrected the circular reference in N15?	
Identified and corrected the circular reference in C22?	
Identified and corrected the circular reference in D22?	
Identified and corrected the circular reference in E22?	



Activity 8.4

Memorandum

Open *Act8.5(Data Errors).xlsx*. Click *OK* on the error message that opens.

1. Determine why the #NULL! error is in some cells and correct it.
2. Correct the circular references.

*Use the following checklist as an assessment guideline*

Criteria	Yes/No
Has the learner...	
Identified the missing operators and corrected the error in B22?	
Identified the missing operators and corrected the error in F22?	
Identified the missing operators and corrected the error in K22?	
Identified the missing operators and corrected the error in M22?	
Identified the missing operators and corrected the error in N2?	
Identified the missing operators and corrected the error in N5?	
Identified and corrected the circular reference in N15?	
Identified and corrected the circular reference in C22?	
Identified and corrected the circular reference in D22	
Identified and corrected the circular reference in E22?	

Open the *Chapter 8\_Revision Activity* spreadsheet. Work in the *Travellers* worksheet. The worksheet shows the statistics of the arrival and departures of travellers using the King Shaka airport from 2010 to 2014.

1. Format the cells in Row 1 as follows:
  - a. Merge the text in Row 1 from cells A1:I1. (1)
  - b. Change the row height of Row 1 to 57. (1)
  - c. Change the size of the heading in row 1 to 22 pt. (1)
2. Adjust the column width of rows 2 and 3 so that all the subheadings are clearly visible. (1)
3. Column C has the arrival months of the travellers. Use AutoFill to continue the arrival months. (1)
4. Apply conditional formatting to Column D so that all the cells displaying more than 4000 SA arrivals. (3)
  - a. Appear in a light blue fill.
  - b. Have a red border.
5. In cell D54 calculate the number of SA residents who arrived at the airport. (2)
6. In cell L4 determine the second largest number of foreign travellers that have departed from the airport. (2)
7. In cell L5 determine the least number of SA residents who have departed from the airport. (2)
8. Use a function in cell L6 to determine how many visitors overnights in May. (2)  
Work on the *Foreign* worksheet. The spreadsheet contains the number of nights spent in each province by foreign tourists.
9. Change only the vertical borders between the headings in row 2 to a reddish line. (2)
10. Insert a function in cell L3 to display the average number of ALL Malawian visitors to South Africa. (3)
11. Insert a function in cell L4 to show how many provinces did not receive Mozambican visitors who came by air. (2)
12. Use conditional formatting to automatically display from which 8 countries the most travellers to KwaZulu-Natal came. Fill the background of these cells with any background colour of your choice. (3)
13. Use a function in cell B50 to calculate all the foreign tourists who visited Gauteng. (2)
14. Insert a function in cell L5 that will display how many countries had people visiting North West. (2)

Use the following checklist as an assessment guideline:

	Criteria	Total marks
1.a.-c.	Row 1: Text merge ✓ Height 57 ✓ Size of heading 22 pt ✓	
2.	Rows 2 and 3: Column width adjusted ✓	
3.	Column C: AutoFill used ✓	
4.a.-b.	Conditional formatting applied ✓ Light blue fill ✓ Red border ✓	

	Criteria	Total marks
5.	Cell D54: =SUM(D4:D53) =SUM ✓ (D4:D53) ✓	
6.	Cell L4: =LARGE(G4:G54;2) =LARGE ✓ (G4:G54;2) ✓	
7.	Cell L5: =MIN(E4:E54) =MIN ✓ (E4:E54) ✓	
8.	Cell L6: =COUNTIF(C4:C53;C8) =COUNTIF ✓ (C4:C53;C8) ✓	
9.	Row 2: Vertical borders ✓ Red line ✓	
10.	Cell L3: =AVERAGE(B6:J6;B15:J15) =AVERAGE ✓ (B6:J6; ✓ B15:J15) ✓	
11.	Cell L4: =COUNTBLANK ✓ (B16:J16) ✓	
12.	Conditional formatting applied ✓ Top 5 =\$E\$4:\$E\$11 ✓ Background fill ✓	
13.	Cell B50: =SUM ✓ (B4:B49) ✓	
14.	Cell L5: =COUNTA(H4:H49) =COUNTA ✓ (H4:H49) ✓	

TOTAL: [30]

## IF FUNCTIONS AND CHARTS

CHAPTER OVERVIEW 

Unit 9.1 Simple IF function

Unit 9.1 Relational operators

Unit 9.2 Charts

The following learning outcomes are covered by this chapter: 

- Use simple IF functions to solve problems.
- Use SUMIF and COUNTIF.
- Describe the use of relational operators in simple IF statements.
- Create and interpret charts and graphs in Excel.
- Format and edit charts and graphs in Excel.
- Embed charts and graphs into Microsoft Word.

GRADE: 11

DATE:

TEACHING TIME: 2.4 hours

## Resources

Each learner should have access to:

- CAT 10 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

The IF function is one of the most used functions in Excel. IF statements allow users to compare conditions in a worksheet. Simply put, IF statements allow one to say that if one condition is true, then the formula should do something. If it is not, the formula should do something else. IF statements can return text, values or even more calculations.

One of Excel's most useful visual tools are the charts and graphs you can create using data. Charts and graphs help you create a visual representation of data that makes it easier for others to interpret and analyse the data.



## Activity 9.1

## Memorandum

Open *Act9.1(Learners).xlsx* and work in the *Members* worksheet. An email must be sent to every person who does NOT have a cellphone number (Column G).

1. Insert a function in cell I3 to determine if an email needs to be sent. If an email must be sent, "Yes" must be displayed, otherwise "No" needs to be displayed. Copy this function to cells I4:I101
2. Every member who joined in 1998 (Column C) qualify for a discount in membership fees. Insert a function in cell J3 to determine which members qualify for a discount. If a member qualifies, "Qualify" must be displayed, otherwise "Not qualify" needs to be displayed. Copy this function to cells J4:J101
3. Members who paid on the 25th day or later (Column E) will be fined for late payment. Insert a function in cell K3 to determine if a member must be fined. If the entry shows the day 25 or later, "Fined" must be displayed, otherwise "No Fine" needs to be displayed. Copy this function to cells K4:K101

Use the following checklist as an assessment guideline:

Criteria	Yes/No
Has the learner . . .	
Used the formula for: Cell I3:	
Copied the function to cells I4:I101?	
Used the formula for: Cell J3:	
Copied the function to cells J4:J101?	
Used the formula for: Cell K3:	
Copied the function to cells K4:K101?	



## Activity 9.2

## Memorandum

Open *Act9.2(Sales).xlsx* and work in the *Data* worksheet.

1. Insert a function in cell I3 to determine the total value (Column H) of all the products sold by the 7Digital Store (in column A). Remember to format your answer as Currency.
2. Insert a function in cell I6 to determine the total value (Column H) of all the MP3s (in column A) sold. Remember to format your answer as Currency.
3. Insert a function in cell I9 to determine the total value (Column H) of all the products sold by the artist Green Day (in column D). Remember to format your answer as Currency.
4. Insert a function in cell I12 to determine the total value (Column H) of all the products sold by the Label EMI UK (in column E). Remember to format your answer as Currency.
5. Insert a function in cell I15 to determine the total value (Column H) of all the DVDs sold (in column B). Remember to format your answer as Currency.

Use the following checklist as an assessment guideline:

Criteria	Yes/No
Has the learner . . .	
Inserted the correct function? Cell I3: =SUMIF(A3:A70;"7Digital";H3:H70) Cell I6: =SUMIF(C3:C70;"MP3";H3:H70) Cell I9: =SUMIF(D3:D70;"Green Day";H3:H70) Cell I12: =SUMIF(E3:E70;"EMI UK";H3:H70) Cell I15: =SUMIF(B3:B70;"DVD";H3:H70)	



Open *Act9.3(sales).xlsx*.

1. Insert a function in cell E3 to determine how many sales were made by "Williams" (in Column A).
2. Insert a function in cell E6 to determine how many sales were made by "Jones" (in Column A).
3. Insert a function in cell E9 to determine how many sales were made in "Qtr 2" (in Column D).

Criteria	Yes/No
Has the learner...	
Used the following functions? Cell E3: =COUNTIF(A2:A15;"Williams") Cell E6: =COUNTIF(A2:A15;"Jones") Cell E9: =COUNTIF(D2:D15;"Qtr 2")	





## Activity 9.4

## Memorandum

Open *Act9.4(Dublin).xlsx*. Work in the *List* worksheet.

1. The organisers of St Patrick's Day want to know with which currencies they will be dealing with, whether visitors will contribute pounds, dollars or Yen.
  - a. Insert a function in cell G3 to determine which visitors in Column F are from the UK. If they are from the UK the word "Pounds" must be displayed, otherwise "No Pounds" must be displayed. Copy this function to the cells in Column G for all visitors.
  - b. Insert a function in cell H6 to determine which visitors in Column F are from the USA. If they are from the USA the word "Dollars" must be displayed, otherwise "No Dollars" must be displayed. Copy this function to the cells in Column H for all visitors.
  - c. Insert a function in cell I4 to determine which visitors in Column F are from the Japan. If they are from the Japan the word "Yen" must be displayed, otherwise "No Yens" must be displayed. Copy this function to the cells in Column G for all visitors.

Work in the *Summary* worksheet.

- d. Insert a function in cell C2 to display "True" if the total number of visitors per city (Column B) is four visitors or more. Otherwise, the function must display "False". Copy the function to indicate for all cities' visitors up to cell B21.
- e. Insert a function in cell D2 to display "True" if the total number of visitors per city (Column B) is less than eight. Otherwise, the function must display "False". Copy the function to indicate for all cities' visitors up to cell B21.

Use the following checklist as an assessment guideline:

Criteria	Yes/No
Has the learner...	
Used the following functions?	
Copied the function to cells I4:I101?	
Cell G3: =IF(F3="UK";"Pounds";"No Pounds")	
Cell H6: =IF(F6="USA";"Dollars";"No Dollars")	
Cell I4: =IF(F4="Japan";"Yen";"No Yens")	
Cell C2: =IF(B2>=4;TRUE;FALSE)	
Cell D2: =IF(B2<8;TRUE;FALSE)	



## Activity 9.5

## Memorandum

1. Open *Act9.5(Species).xlsx* and work in the *Spec* worksheet.
  - a. Create a pie chart in a new worksheet called Pie Chart to display the severity percentages for all Vertebrates (Column A).
    - Add the title “% of Endangered Vertebrates” roughly in the middle of the chart.
    - Add the legend at the bottom.
    - You must use data labels for each piece of the pie chart.
    - The “Birds” section must be separated from the rest of the pie.
  - b. Create a column graph in a new worksheet called “Column Chart” to display the number of threatened species per year (2008 – 2014) for all Invertebrates (Column A).
    - Add an appropriate title to the chart.
    - Add the legend at the top.
    - You must use data labels for the chart.

Use the following checklist as an assessment guideline:

Criteria	Yes/No
Has the learner...	
Created a Column Graph in a new sheet called ‘Pie Chart’? Added the title ‘% of endangered species’ roughly in the middle of the chart? Added the legend in the bottom Used data labels for each piece of the pie chart? Separated the ‘Birds’ section from the rest of the pie?	
Created a pie chart in a new sheet called ‘Column Chart’? Added an appropriate title? Added the legend at the top? Used data labels for the chart?	

Ace Travel has stored a list of their clients in a spreadsheet.

Open the *Chapter 9\_Revision Activity* spreadsheet and work in the *Clients\_Kliënte* worksheet.

1. 1. Format the worksheet as follows:
  - a. Centre the text in row 1. (1)
  - b. Use a light blue fill colour for row 1. (1)
  - c. Change the height of row 1 to 30 pt. (1)
  - d. Wrap the contents of cell A3. (1)
2. Use conditional formatting on Column E to automatically highlight all males in a yellow fill colour and red text colour. (3)
3. Insert a function in cell K8 to determine the total number of trips made by clients. (2)
4. Insert a function in cell K9 to determine how many clients are NOT international travellers. (3)
5. Create a pie chart to display the percentage breakdown of each category of traveller status. Use the data in cells J11:K13 to create the chart as follows:
  - Add the following chart title above the chart (bold & 14 pt): Traveller Status.
  - Display the percentage for each category of traveller status.
  - Fill the category that has the highest percentage with any gradient colour of your choice.
  - Display the chart in a new worksheet and rename it to: Travellers (8)

Work in the *Bookings\_Besprekings* worksheet.

6. The rate per day is stored in Column H.  
Insert a formula in cell D5 to determine the total accommodation cost for the duration of the stay for Bertha Hood. (2)
7. Insert a function in cell J7 to determine the third lowest rate per day. (2)
8. Insert a function in cell J10 to determine the total number of days (Column C) that clients will spend at hotels or lodges in Kenya. (4)
9. A booking reference in Column A that is indicated with an “X” indicates an international hotel or lodge. A booking reference that is indicated with a “D” indicates a domestic hotel or lodge. Insert a function in cell E10 to return the value “TRUE” if the hotel or lodge in row 10 is international and the value “FALSE” if the hotel or lodge in row 10 is domestic. (4)

Use the following checklist as an assessment guideline:

	Criteria	Total marks
1.a.	Row 1: Text in row 1 text is centred ✓	
b.	Row 1: Light blue fill colour ✓	
c.	Row 1: Row height 30 pt ✓	
d.	Cell A3: Contents of cell A3 wrapped ✓	
2.	Conditional formatting in Column E: <ul style="list-style-type: none"> <li>● Conditional formatting has been applied to Column E ✓</li> <li>● yellow fill and red text colour ✓</li> <li>● All males ✓</li> </ul>	
3.	Cell K8: =SUM ✓ (F4:F53) ✓	
4.	Cell K9: =COUNTIF(G4:G53;FALSE) COUNTIF ✓ G4:G53 ✓ FALSE ✓	

	Criteria	Total marks
5.	Graph <ul style="list-style-type: none"> <li>● Pie chart/graph inserted ✓</li> <li>● Correct data series selected: =Clients!J11:K13 ✓</li> <li>● Chart title inserted "Traveller Status" ✓ bold and 14 pt ✓ ✓</li> <li>● Correct percentages displayed for each category ✓</li> <li>● Category (Adults/Volwassenes) with the highest percentage filled with gradient colour ✓</li> <li>● The chart appears in the sheet named 'Travellers' ✓</li> </ul>	
6.	Cell D5: =H5* ✓ C5 ✓	
7.	Cell J7: =SMALL ✓ (H4:H30;3) ✓	
8.	Cell J10: =SUMIF(G4:G30;"Kenya";C4:C30) SUMIF ✓ G4:G30 ✓ "Kenya" ✓ C4:C30 ✓	
9.	Cell E10: =IF(A10="X";TRUE;FALSE) IF ✓ A10="X" ✓ TRUE ✓ FALSE ✓	

TOTAL: [32]

# WORKING WITH SPREADSHEETS

## CHAPTER 10

### CHAPTER OVERVIEW

Unit 10.1 Import/Export data

Unit 10.2 Help files

Unit 10.3 Manipulating worksheets

Unit 10.4 Integration techniques

The following learning outcomes are covered by this chapter:

- Import data into Excel from various sources.
- Export data from Excel into various formats.
- Manipulate spreadsheet data, including moving and copying data, adding headings, freezing panes and viewing gridlines.
- Protect a spreadsheet using Excel's built-in tools.
- Use different print options, including print area.
- Link cells and formulas between sheets.

GRADE: 11

DATE:

TEACHING TIME: 2.4 hours

#### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

Excel's ability to take large sets of data and perform complex calculations on it has made it one of the most popular spreadsheet programs in the world. This popularity is also due to the fact that Excel makes it easy for users to import data from other sources and to manipulate that data so that it makes sense.



## Activity 10.1

## Memorandum

Open *Act10.1(Species).xlsx* and work in the *Spec* worksheet.

1. Import the data from *Act10.1(Imp).csv* into the worksheet *Imp*.
2. Save and close the spreadsheet.

Use the following checklist as an assessment guideline:

Criteria	Yes/No
Has the learner...	
Imported the data from <i>Imp.csv</i> into the worksheet <i>Imp</i> ?	



## Activity 10.2

## Memorandum

Open *Act10.2(Rivers).xlsx*.

1. Work in the *Rivers* sheet.
  - a. Protect columns A-C to stop users entering text.
  - b. Use 1234 as your password.
2. Work in the *Rivers* sheet.
  - a. Change the page layout to ensure that all the data will fit on one page without adjusting the font size and column widths.
3. Save and close the workbook.

Use the following checklist as an assessment guideline:

Criteria	Yes/No
Has the learner...	
Protected Columns A-C to stop users entering text?	
Used 1234 as his/her password?	
Changed the page layout to ensure that all the data will fit on one page without adjusting the font size and column widths?	



## Activity 10.3

## Memorandum

A local Pokémon GO! Community group has been hosting their special events at a nearby zoo. They sell tickets for R45. They have captured data for each of the events they sold online tickets for.

They want to see how many tickets they have sold on average since the first event, how much money they made at each event and which event had the highest number of ticket sales.

Open the spreadsheet *Act10.3(Sales data).xlsx* and calculate the following:

1. In Column C of each sheet (Chikorita Day, Beldum Day and Cyndaquil Day) calculate how much each person paid for their tickets for each event.
2. Calculate the total number of tickets sold and the total sales for each event. This will be done in:
  - Cells B59 and C59 respectively for Chikorita Day.
  - Cells B74 and C74 respectively for Beldum Day.
  - Cells B39 and C39 respectively for Cyndaquil Day.
3. On the sheet called Ticket totals, calculate for each event:
  - the number of tickets sold (B2-B4).
  - the average number of tickets sold (C2-C4).
  - The average sales (D2-D4); by linking the calculations for each event to their respective cells on the sheet *Ticket totals*.

Use the following checklist as an assessment guideline:

Criteria	Yes/No
Has the learner...	
Calculated how much each person paid for his/her tickets for each event? Chikorita Day sheet: =SUM(C2:C58) Beldum Day sheet: =SUM(C2:C73) Cyndaquil Day sheet: =SUM(C2:C38)	
Calculated the total number of tickets sold and the total price Chikorita Day sheet: B59: =SUM(B2:B58) C59: R5 940.00 Beldum Day sheet: B74: =SUM(B2:B73) C74: R8 685.00 Cyndaquil Day sheet: B39: =SUM(B2:B38) C39: R3 195.00	
=SUM(B2:B4) - 396 =AVERAGE(C2:C4) - 2.3 =AVERAGE(D2:D4) - R103.73	

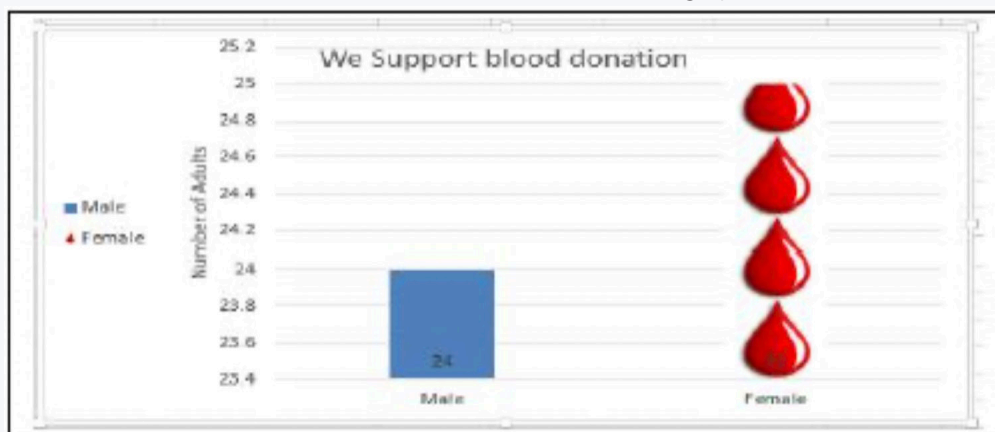


Open the *Chapter 10\_Revision Activity* spreadsheet. The details of the blood donors at the school are stored in this spreadsheet. Work in the *DonorsInfo* worksheet.

1. Format the headings in A1:G1 with a red fill and the font colour to be white. (2)
2. Change the format of the heading in cell I2 to resemble the image below: (2)



3. Change the font of rows 1 and 2 to Comic Sans MS. (1)
4. Apply a suitable formatting in Column H so that all cells with donors who weights below 60 KG are displayed with a light blue fill. (3)
5. Use a suitable formatting in rows 1 and 2 to lock the headings so that they are kept visible when you scroll through the rest of the worksheet. (2)
6. Learners that donate more than 30 litres of blood are seen as “Peer Promoters” and those less than 30 litres seen as “Beginners”. The words “Peer Promoter” and “Beginner” should appear in column F based on the litres of blood donated in column I. (3)
  - o In cell F26, use a function to determine category for Liyema Frans. (2)
  - o Work in the Save-a-ton worksheet.
7. General statistics are normally needed of the learners that are taking part in the Save-a-Ton. (2)
  - a. In cell I5, use a function to calculate the number of girls who took part. (2)
  - b. In cell I6 insert a function to determine the number of male adults. (2)
8. Use the totals for the Male and Female in J1:K2 to create a graph similar to the one below. (2)



NOTE:

- o The graph must be a column chart.
  - o Display a centred overlay chart title: “We support Blood Donation”.
  - o Format the column for female to a stack filled with a picture Droplets.jpg.
  - o The vertical axis must have a rotated title that reads ‘Number of Adults’.
  - o Legend must be displayed on the left side.
  - o Data labels must be displayed inside base. (8)
9. Move the chart/graph to a new worksheet within the existing spreadsheet. (2)
 

Rename the new sheet ‘Chart’.

Work in the *Import* worksheet.
  10. Import the data from the Import.txt file into the *Import* worksheet. (3)
 

Save and close the spreadsheet.

Use the following checklist as an assessment guideline:

	Criteria	Total marks
1.	Row 1 A1:G red fill and font colour white ✓ ✓	
2.	Cell I2 Wrap text ✓ ✓	
3.	Rows 1 and 2 Comic Sans MS ✓	
4.	Conditional Formatting Conditional formatting rule applied ✓ Cell value "<60KG" ✓ Light blue fill ✓	
5.	Rows 1 and 2 Freeze panes ✓✓	
6.	Cell F26 =IF(I3:I41>30;"Peer Promoters";"Beginner") =IF ✓ I3:I41>30 ✓ "Peer Promoters";"Beginner" ✓	
7.a.	I5 =COUNTIF(C4:C52;"Female") =COUNTIF ✓ C4:C52;"Female" ✓	
7.b.	I6 =COUNTIF(C4:C53;"Male") =COUNTIF ✓ C4:C53;"Male" ✓	
8.	Chart/Graph Column chart created ✓ Chart title, "We support Blood Donation" ✓ Female column: stack filled with picture Droplets.jpg ✓ ✓ Vertical axis: "Number of Adults", rotated title ✓ ✓ Legend on left side ✓ Data labels inside base ✓	
9.	Move chart Rename sheet, "Chart"	
10.	Import worksheet: Import data Import.txt file	

TOTAL: [30]

# TEMPLATES AND INTEGRATION

## CHAPTER OVERVIEW

Unit 11.1 Templates

Unit 11.2 Integration with other packages

Unit 11.2 Problem solving

Unit 11.3 Troubleshooting

The following learning outcomes are covered by this chapter: 

- Insert a header or footer.
- Create templates and save workbooks as templates.
- Integrate spreadsheets with other packages, such as linking charts and graphs.
- Plan and design your own documents for specific scenarios or enquiries.
- Solve problems using spreadsheets.
- Troubleshoot spreadsheets and find and view Help files in Excel.

**GRADE:** 11

**DATE:**

**TEACHING TIME:** 2 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader



## Activity 11.1

## Memorandum

1. Open a blank Excel document
2. Add the following headings to cells A1-E1:
  - a. Item
  - b. Units
  - c. Unit Price
  - d. Price
  - e. VAT
3. Add the following formula to cell D2:  $=C2*B2$ . Your answer will be 0.
4. Add the following formula to cell E2:  $=C2*1.15$ . Your answer will be 0.
5. Save the document as a template called *Stock-on-hand.xlsx*

Use the following checklist as an assessment guideline:

Criteria	Yes/No
Has the learner...	
Added the headings to the correct cells?	
Added the formula to cell D2 and obtained 0 as a result?	
Added the formula to cell E2 and obtained 0 as a result?	
Saved the document as a template called <i>Stock-on-hand.xlsx</i> ?	



Activity 11.2

Memorandum

Open the workbook *Act11.2(Pie chart).xlsx*.

1. Create a pie chart using the data in *Sheet 1*.
2. Insert the chart into the Word document, *Act11.2(Pie chart).docx*. Find the text [insert chart here]. (Remove the placeholder after the chart has been inserted.)
3. The chart should update automatically when the original data is changed.
4. Save and close both files.

Use the following checklist as an assessment guideline

Criteria	Yes/No
<p>Has the learner...</p> <p>Created a pie chart using the data in the sheet?</p> <div style="text-align: center;"> <p><b>Food type</b></p> <p>■ Chicken ■ Fish ■ Chips ■ Salad ■ Dessert ■ Steak</p> </div>	
<p>Inserted the pie chart into the word document and removed the place holder text?</p> <div style="text-align: center;"> <p><b>Food type</b></p> <p>■ Chicken ■ Fish ■ Chips ■ Salad ■ Dessert ■ Steak</p> </div>	
<p>Linked the chart correctly?</p>	



## Activity 11.3

## Memorandum

1. Open the *Act11.3(Excel\_Help).xlsx* file and use the Excel Help feature to answer the questions/fix the errors in the functions.
  - 1.1 The question deals with the POWER function. Enter the correct function in cell E3.
  - 1.2 The question deals with the SMALL function. Enter the correct function in cell E6.
  - 1.3 The question deals with the ROUND function. Enter the correct function in cell E16.
  - 1.4 The question deals with the #VALUE error. Enter the correct function in cell E19.
  - 1.5 The question deals with the IF function. Enter the correct function in cell E25.

Use the following checklist as an assessment guideline:

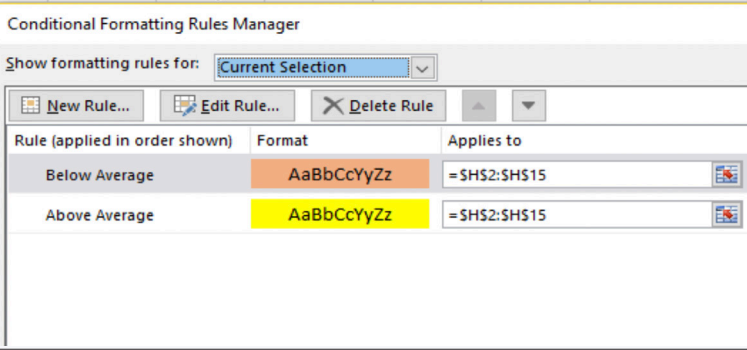
Criteria	Yes/No
Has the learner ...	
Used the correct functions?	
Cell E3:	
Cell E6:	
Cell E16:	
Cell E19:	
Cell E25:	

Open the *Chapter 11\_Revision Activity* spreadsheet and complete the tasks below.

1. Format row 1 as follows:
  - Apply text wrapping to the headings in row 1.
  - Increase the font size of the text to 14.
  - Apply any gradient fill to cells A1:H1.
  - Freeze row 1 to make navigation in the worksheet easier. (4)
2. In cells B16-H16, use a function to track marks over the school year for each of the subjects. (7)
3. In cells B17-H17, use a function to work out the average over the school year for each of the subjects. Round the average to one decimal place using the ROUND function. (7)
4. Use conditional formatting to keep track of when the average for Life Orientation went up or down and when the mark was below or above the average. If the mark is below average the cell must appear with a light red fill and if the mark is above average the cell must appear with a yellow fill. (3)
5. Insert a page header as follows:
  - Left section: Page Number
  - Center section: Add your name and surname (3)
6. You need to represent the averages of all the marks for each of the subjects visually.
  - Create a pie chart with the averages that you have determined in cells B17:H17.
  - Display the legend below the chart.
  - Add the following chart title above: 'AVG Year marks'.
  - Data labels must be displayed outside end.
  - Move the chart to be displayed on a new sheet.
  - Rename the sheet of the chart to: *Avg Marks*. (8)
7. Save a copy of the workbook as a template in your Chapter 11 file. (1)

Use the following checklist as an assessment guideline:

	Criteria	Total marks
1.	Row 1 Text Wrapping applied ✓ Font 14 pt ✓ Gradient fill A1:H1 ✓ Freeze row 1 ✓	
2.	=SUM(B2:B15) ✓ =SUM(C2:C15) ✓ =SUM(D2:D15) ✓ =SUM(E2:E15) ✓ =SUM(F2:F15) ✓ =SUM(H2:H15) ✓	
3.	=ROUND(AVERAGE (B2:B15),1) ✓ = ROUND(AVERAGE (C2:C15),1) ✓ = ROUND(AVERAGE (D2:D15),1) ✓ = ROUND(AVERAGE (E2:E15),1) ✓ = ROUND(AVERAGE (F2:F15),1) ✓ = ROUND(AVERAGE (G2:G15),1) ✓ = ROUND(AVERAGE (H2:H15),1) ✓	

	Criteria	Total marks
4.	Conditional formatting: 	
5.	Page header: Page numbering applied ✓ Page number left aligned ✓ Name and surname added to center section ✓	
6.	Chart: Pie chart created ✓ Cells B17:H17 used ✓ Legend below chart ✓ Title: AVG Year marks ✓ Data labels outside end ✓ Chart moved to new sheet ✓ ✓ Sheet renamed, Avg marks ✓	
7.	Copy saved as a template ✓	

TOTAL: [33]



## INTRODUCTION TO DATABASES

CHAPTER OVERVIEW 

Unit 12.1 Basics of Access

Unit 12.2 Work with different views

Unit 12.3 Database structure

The following learning outcomes are covered by this chapter: 

- Discuss the uses of a database.
- Describe the role of tables, queries, forms and reports.
- Explain the difference between records and fields.
- Describe how field names determine the data type in each field.
- Define the different data types in an Access database.
- Describe the structure of a database.
- Create tables and forms in an Access database.
- Work with design and table views in Access.
- Format and edit data and tables in a database.

GRADE: 11

DATE:

TEACHING TIME: 8 hours

## Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

In Grade 10, learners learned about Excel and how you can use it to sort through and analyse data using spreadsheets, which are mainly used to perform calculations. A spreadsheet program allows you to store, organise and analyse information.

Access, a database application, uses tables in a way that learners will recognise from their work with Excel, that is, to store and organise data.

In this chapter they will learn what databases can be used for, what tables, queries, forms and reports are and why they are essential to databases. They will also learn about records and field and how field names influence data. Data types and the structure of a database will also be explained.

Learners will be shown how to create a table and form in Microsoft Access, how to add and delete records and fields and how to validate and sort data. They will learn about how to use the Datasheet View and the Design View for different tasks in a database and the basics of formatting and editing data.



## Activity 12.1

## Memorandum

1. What can databases be used for? Give two examples.  
*Answer: A doctor might use a database to store patient information or a school might store the subjects and marks for each learner attending that school.*
2. Explain the function of each of the elements in Access (tables, forms, queries and reports)?  
*Answer:*
  - In databases, all data is stored in tables, which puts tables at the heart of any database. Like in Excel, the tables in Access are organised into vertical columns, called fields, and horizontal rows, called records.
  - Forms are used for entering, modifying, and viewing records. Forms make entering data easier because they standardise the way data is entered or captured in the database.
  - Queries are a way of searching for and pulling data from one or more tables. Running a query is like asking a detailed question of your database.
  - Reports give you the ability to present your data. Your timetable or report card are examples of reports. Reports are useful because they allow you to present components of your database in a way that is easy to read.
3. Describe the difference between fields and records in a database.  
*Answer:*
  - Fields and records make up the data in a table. Fields are the columns in the table and records are the rows. Each field will contain a single type of data, for example, a field marked "Name" will contain only names while a field marked "Telephone Number" would contain only telephone numbers. The type of data inside a field is always determined by the field's name.
  - Records, on the other hand, contain all the data in a single row of the table, so in a table called "Users", a record will contain the entry's identifier (or ID), a username, name, email address and password. All the cells in that row make up the whole record.



## Activity 12.2

## Memorandum

1. Create a new database Activity 12.2.
  - a. Create a table Learner Data. Add the following fields.

Field name	Data type
LearnerID	Autonumber
Name	Short Text
Surname	Short Text
Grade	Short Text
Fees Paid	Number

- b. Set a primary key for the LearnerID field. Save and close the database.

Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner...	
Created a new database?	
Added all the fields?	
LearnerID field: Primary key?	



## Activity 12.2

## Memorandum

1. Create a new database *Activity 12.2*.
  - a. Create a table *Learner Data*. Add the following fields.

Field name	Data type
LearnerID	Autonumber
Name	Short Text
Surname	Short Text
Grade	Short Text
Fees Paid	Number

- b. Set a primary key for the *LearnerID* field.

Save and close the database.

Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner...	
Created a new database?	
Added all the fields?	
LearnerID field: Primary key?	



## Activity 12.3

## Memorandum

Open the *Activity 12.3* database and edit the table *tblCode* as follows:

1. Remove the *ID* field.
2. Change the data type for the *Entry date* field to a more suitable data type.
3. Add a new field called *Type*, using an appropriate data type.
4. Go to the datasheet view and complete the table by adding the following missing data:

Code	Name	Entry date	Type
E	Endangered	12/03/2019	Bird
SC	Specific Concern	05/02/2019	Bird
SR	Significantly Rare	10/02/2019	Plant
T	Threatened	18/03/2019	Plant

Save and close the database.

Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner...	
Removed the <i>ID</i> field?	
Changed the data type for the <i>Entry date</i> field to a more suitable data type?	
Added a new field called <i>Type</i> , using an appropriate data type?	
Completed the missing data?	



Open the Activity12.4 database.

1. Create a form called *frmSpecies* based on the *Survey* table as follows:
  - a. Include all the fields of the *Survey* table.
  - b. Make sure the form has a tabular layout.
  - c. Change the font of the form heading to bold and change the background of the form to any colour of your choice.

Save and close the database.

Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner...	
Created a form called <i>frmSpecies</i> based on the <i>Survey</i> table?	
Included all the fields of the <i>Survey</i> table?	
Given the form has a tabular layout?	
Changed the font of the form heading to bold and change the background of the form to any colour of your choice?	
Saved and closed the form?	

WRITTEN ACTIVITY

Match the description in Column B to the term/description in Column A. (10)

Column A		Column B	
1	Database	A	Shows only the data in the database.
2	Table	B	Searching for and pulling data from tables.
3	Record	C	Different folders.
4	Field	D	Allows you to create/ change the table or other database object and allows you to configure the fields.
5	Datasheet View	E	A collection of a large amount of data.
6	Design View	F	Used for entering, modifying, and viewing records.
7	Primary Key	G	Present components of your database in a way that is easy to read.
8	Queries	H	Contain a single type of data.
9	Form	I	Contain all the data in a single row of the table.
10	Report	J	A set of related records/ data.
		K	Unique identifier for something across the whole database.
		L	All the data on your computer.

Answer

1	2	3	4	5	6	7	8	9	10
E	J	I	H	A	D	K	B	F	G

PRACTICAL ACTIVITY

Open the *Chapter 12\_Revision Activity* database.

1. Create a new table: **Sales**. The table must consist of the following fields.

Note carefully the data type and the size of each field:

Field name	Data type	Field size / Type
Customer ID	AutoNumber	Primary key
Customer name	Short text	20
Customer surname	Short text	25
Shipping	Short text	30
Category	Short text	40
Date received	Date / Time	Medium date

2. Switch to Design View and enter the following records: (5)

Customer ID	Customer name	Customer surname	Shipping	Category	Date received
1	Claire	Nelson	Express	Furniture	19-June-19
2	Sean	Powers	Standard	Technology	22-May-19
3	Andrew	Smith	Express	Office Supplies	10-May-19
4	Sandra	Grove	Express	Furniture	15-April-19
5	Eric	Hoffman	Standard	Technology	20-April-19

Save and close the table.

3. Create a form called *frm\_Sale* records based on the **Sales** table as follows:

- a. Include all the fields of the **Sales** table.
- b. Make sure the form has a tabular layout.

Save the form and close the database.

Use the following checklist as an assessment guideline:

	Criteria			Total marks
1.	Customer ID ✓	AutoNumber	Primary key ✓	
	Customer name ✓	Short text	20 ✓	
	Customer surname ✓	Short text	25 ✓	
	Shipping ✓	Short text	30 ✓	
	Category ✓	Short text	40 ✓	
	Date received ✓	Date / Time	Medium date ✓	
2.	Data added correctly to the fields ✓ ✓ ✓ ✓ ✓			
3.	Form: Form created, frm_Sale ✓ All the fields included ✓ Tabular layout ✓			

**TOTAL: [30]**



## CHAPTER OVERVIEW

Unit 13.1 Design database tables

Unit 13.2 Queries



The following learning outcomes are covered by this chapter:

- Apply custom formatting to fields and records in an Access database.
- Describe other applications that Access can be integrated with.
- Choose the correct data types for tables.
- Set field properties for data fields.
- Design and execute basic queries.
- Select which fields to display in a query.
- Troubleshoot basic Access errors.
- Describe how Access can be used to solve problems.

GRADE: 11

DATE:

TEACHING TIME: 4 hours

## Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

Databases can also be customised to make reading the data easier. In this chapter, learners will learn how to apply custom formatting to fields and records in a database and how to integrate Access into other applications. They will also learn how to troubleshoot basic Access error





## Activity 13.1

## Memorandum

1. Why is it important to have properly designed databases?  
*Answer: A properly designed database will always give you accurate and up-to-date information when you need it.*
2. Which two principles determine good database design?  
*Answer: There are two main principles that determine good database design:*
  - *No redundant data.*
  - *Correct and complete information.*
3. What is redundant data and why is it bad for a database?  
*Answer: Redundant data is data that is duplicated, meaning that there is more than one record with the same information in it. Redundant data in a database is bad, because it takes up unnecessary space and it can lead to errors when you are creating a report.*
4. What benefits do a good database design give you?  
*Answer: A good database design:*
  - *Divides information into subject-based tables to limit the amount of redundant data.*
  - *Gives the database program the information it needs to join the data in the tables together correctly.*
  - *Helps make sure your data is accurate and maintains its integrity.*
  - *Matches your data processing and reporting needs.*
5. What is the first step in designing a good database?  
*Answer: Before you can begin designing database tables, you need to first determine the purpose of your database, that is, what it will be used for.*



## Activity 13.2

## Memorandum

Open the *Act13.2* database.

1. Create a query called *qrySchool* based on the *Contestant* table.
    - a. Extract all learners from Cape High School and Bay High School who are 18 years old.
    - b. Display only the Surname\_Van, Name\_Naam, School\_Skool and Age\_Ouderdom fields.
- Save and close the database.

Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner...	
Created a query called <i>qrySchool</i> ?	
Extracted all learners from Cape High School and Bay High School who are 18 years old?	
Display only the Surname_Van, Name_Naam, School_Skool and Age_Ouderdom fields?	

A database was created to capture data about different species and survey data about their endangered status.

Open the *Chapter 13\_Revision Activity* database.

1. Work in the *tblSurvey* table and make the following changes to the design of the table:
  - a. Change the field size of the *CName* field to 40. (2)
  - b. The *Status* field must be a required field. (2)
  - c. Set the *ID* field as the primary key. (2)
  - d. Create an input mask for the *Status* field to accept data in the following format:
    - a compulsory capital letter followed by
    - an optional capital letter.
    - Examples: SR, T, etc (4)
  - e. Set a validation rule to ensure that users are not allowed to capture dates before 2012 for the *SurveyDate* field. If they should enter invalid dates the following validation text must appear: 'No entries before 2012'. (4)
  - f. Change the row height of the table to 20 units. (1)
  - g. Change the font size of the table to 12pt and the font type to Georgia. (2)
  - h. Set all the gridlines on red. (1)
2. Create a query called *qryPlant* based on the Survey table.
  - o Display only the Type, CName and Protected fields.
  - o Sort the data in ascending order according to the CName field. (4)
3. Create a query called *qryPopulation* based on all the fields of the Survey table.
  - o Do not show the Habitat and ID fields.
  - o Only species of a population of more than 500 must be displayed.
  - o Show all the species with a "T" or "SR" status. (4)

Use the following checklist as an assessment guideline:

	Criteria	Total marks
1.a.	Field: CName Correct field✓ • Field size 40 ✓	
b.	Field: Status Correct field✓ Required field✓	
c.	Field: ID Correct field✓ Primary key✓	
d.	Field: Status Input mask: <L ✓ ✓ <? ✓ ✓	
e.	Field: SurveyDate • Validation Rule <#2012/01/01# ✓ ✓ • Validation text No entries before 2012 ✓ ✓	
f.	Row height: 20 units ✓	
g.	Font size: 12pt ✓ Font type: Georgia ✓	
h.	Gridlines: red ✓	

Use the following checklist as an assessment guideline:

	Criteria	Total marks
2.	Query: <i>qryPlant</i> Display only the Type, CName and Protected fields. ✓ ✓ Criteria: CName: Ascending order ✓ Plant: True ✓	
3.	Query: <i>qryPopulation</i> Criteria: Habitat and ID fields: unchecked ✓ Population: <500 ✓ Status: "T" OR "SR" ✓ ✓	

TOTAL: [26]

# REPORTS

## CHAPTER OVERVIEW

Unit 14.1 Reports

Unit 14.2 Formatting technique

The following learning outcomes are covered by this chapter:

- Design basic reports that include calculations and headers and footers.
- Import and export data to and from an Access database.

GRADE:

11

DATE:

TEACHING TIME:

6 hours

### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

In this unit, learners will learn how to create basic reports and have basic calculations, such as SUM, AVG, COUNT, MIN and MAX at the end of the report. They will also learn how to add headers and footers to reports and how to import data into and export data from an Access database.



## Activity 14.1

## Memorandum

Open the *Act14.1* database.

1. Create a report called *Country* based on the *Info\_Inlig* table as follows:
  - a. Display only the following fields: *Surname\_Van*, *Country\_Land*, *Departure\_Vertrek* and *Arrival\_aankoms*.
  - b. Sort the records in the report according to the *Surname\_Van* field.
  - c. Use the outline layout.

Save and close the database.

Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner ...	
Create a report called <i>Country</i> ?	
Display only the following fields: <i>Surname_Van</i> , <i>Country_Land</i> , <i>Departure_Vertrek</i> and <i>Arrival_aankoms</i> ?	
Sort the report according to the <i>Surname</i> field?	
Use an outline layout?	



## Activity 14.1

## Memorandum

Open the *Act14.2* database.

1. Create a report called *rptFees* based on the *tblBookings* table.
  - a. Display only the *Name*, *UnitType*, *Days* and *AmountReceived* fields.
  - b. Use a function to display the total amount received by unit type.
  - c. Use a function in the Report Footer to display the average amount of all the money received. The amount must be displayed as currency (SA Rand).
  - d. Use the tabular layout for the report.

Save and close the database.

Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner ...	
Created a report called <i>rptFees</i> ?	
Display only the <i>Name</i> , <i>UnitType</i> , <i>Days</i> and <i>AmountReceived</i> fields?	
Group the records by the <i>UnitType</i> field?	
Use a function to display the total amount received by unit type?	
Use a function in the Report Footer to display the average amount of all the money received?	
Use the tabular layout?	



## Activity 14.3

## Memorandum

1. Create a new database *Activity 14.3*.
  - a. Create a table by importing the data from the *Learners* spreadsheet.
  - b. Use the worksheet name as the table name.

Save and close the database.

Use the following checklist as an assessment guideline

Criteria	Yes/No
Has the learner...	
Import data from the <i>Learners</i> spreadsheet?	
Use the worksheet name as the table name?	

WRITTEN ACTIVITY

1. Explain the difference between Design View and Datasheet View of a table. (2)

*Answer: The Design View allows you to create or change the table, form or other database object and allows you to configure the fields (that is, defining the field properties, etc.). The Datasheet View shows only the data in the database.*

2. Why are reports useful in a database? (2)

*Answer: Reports give you a way to format, view and summarise the information in your Access database for a huge range of different applications.*

3. Complete the following table on the basic calculations you can use in a report. (4)

Calculation	Description	Function
(a)	The sum of all the numbers in the column.	Sum()
Average	The average value of all the numbers in the column.	(b)
Count	(c)	Count()
Maximum	The highest numeric or alphabetic value in the column.	(d)
(e)	The lowest numeric or alphabetic value in the column.	Min()

*Answer:*

Calculation	Description	Function
Sum	The sum of all the numbers in the column.	Sum()
Average	The average value of all the numbers in the column.	Avg()
Count	The count of items in the column.	Count()
Maximum	The highest numeric or alphabetic value in the column.	Max()
Minimum	The lowest numeric or alphabetic value in the column.	Min()

4. Which delimiter should you use in a \*.csv to make importing easier? (1)

*Answer: Comma or semi-colon*

5. Which view do you use to apply custom formatting to a database? (1)

*Answer: Design view*

6. Which other applications can you integrate Access with? (4)

*Answer:*

- Windows SharePoint Services
- Microsoft Outlook
- Microsoft SQL Server
- Azure SQL Server Database

7. List two things you can do to troubleshoot errors in Access databases. (2)

*Answer:*

*Make sure the data type has been selected correctly for the field.*

*Check to make sure your queries have been formulated correctly.*

8. Describe the three ways you can access the Help pane in Access. (4)

*Answer: Access the Help pane in Access by pressing F1 on your keyboard and searching for your error or using the Tell me what you want to do search bar next to the tabs in Access. You can also visit the Microsoft support website and search for your problem.*



## PRACTICAL ACTIVITY

A database contains data about blood donors in schools.

Open the *Chapter 14\_Revision Activity* database and do the following:

1. 1. Open the *Info* table and change the following:
  - a. Change the field size of the Name field to 20. (1)
  - b. Set the default value for the Grade field to 10. (1)
  - c. Add a new field called Gender, using an appropriate data type, so that it appears immediately after the Grade field. (3)

Add a validation rule to the Gender field so that only a “M” or “F” can be entered. If a user makes a mistake the following validation text should appear, “only M or F allowed”. (4)

  - d. Add an appropriate feature that will allow the Weight field to accept data entered in the following way:
    - 2 compulsory numbers followed by KG
    - EXAMPLE: 85 KG, 50 KG (3)

Save and close the *Info* table.
2. Create a query called *qryGrade* based on the *Info* table.
  - Display only the Surname, Name, Grade and Category fields.
  - Sort the records alphabetically according to the surname.
  - Show the records of all the donors who are in Grade 10 and Grade 11. (4)

Save and close the *qryGrade* query.
3. Create a form *frmDonors* based on the *Info* table.
  - Select only the following fields: Name, Surname, Age, Category and Blood Type.
  - Place a new label in the form header and type in ‘Donor Info’. Change the font size of the heading to 14 pt and change the background colour of the heading to yellow.
  - Add the date and time to the Form Footer. (6)

Save and close the *frmDonors* form.
4. Create a report called *rptBlood Donated* based on the *Info* table.
  - Display only the Name, Surname, Grade, Weight and Litres Donated fields.
  - Group the records according to the Grade field.
  - Sort the records according to the Surname field.
  - Add the following functions in the report footer:
    - Insert a function to determine the average litres of blood donated by all the learners.
    - Insert a function to determine the total number of learners. (8)

Save and close the *rptDonor* Info report.

Save and close the database.

Use the following checklist as an assessment guideline:

	Criteria	Total marks
1.1	Name field: Size: 20 ✓	
1.2	Grade field: Default value: 20 ✓	
1.3	New field: Gender ✓ After Grade field ✓ Short text ✓	
1.4	Gender field: Validation rule "M" OR "F" ✓ ✓ Validation text "only M or F allowed" ✓ ✓	
1.5	Weight field: Input mask 00 ✓ ✓ KG ✓	
2	qryGrade: Display only the Surname, Name, Grade and Category fields. ✓ ✓ Surname field: ascending order ✓ Grade field: 10 OR 11 ✓	
3	frmDonors: Display only the following fields: Name, Surname, Age, Category and Blood Type. ✓ ✓ Label: 'Donor Info' ✓, font size 14pt ✓, background colour yellow ✓ Form Footer: Date and Time ✓	
4	rpriBlood Donated: Display only the Name, Surname, Grade, Weight and Litres Donated fields. ✓ ✓ Grade field: group ✓ Surname field: sort ✓ Report footer functions: =AVG([Average litres of blood]) ✓ ✓ =COUNT([*]) ✓ ✓	

**TOTAL: [50]**

# INTRODUCTION TO HTML

## CHAPTER OVERVIEW

Unit 15.1 Introduction to HTML

Unit 15.2 Basic HTML tags

Unit 15.3 Text formatting

Unit 15.4 Putting it all together

The following learning outcomes are covered by this chapter:

- Describe what HTML is and what it is used for.
- Discuss what an HTML editor is.
- Define HTML syntax.
- Explain the structure and design of a simple HTML page.
- Identify and use basic HTML tags, including document and text tags.
- Use HTML comments.
- Identify and use the correct attributes and syntax for HTML links, images and lists.
- Describe the principles of good website design.

GRADE: 11

DATE:

TEACHING TIME: 4 hours


### Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

In this chapter, learners will learn all about what HTML is and how they can use it to create websites. They will be shown what an HTML editor is and how they work, be introduced to HTML syntax and the structure, and the design of a simple web page. They will then be taught about the basic building blocks of HTML. They will also learn how lists, images and links are indicated in HTML, and about what makes a good website.

 **Guided activity**  
15.3 **Memorandum**

Learners need to be clear about the difference between using a `<p>` tag and a `<br />`.

 **Guided activity**  
15.4 **Memorandum**

Question 6 is important. Omitting the closing `</b>` tag causes the text in the remainder of the document to appear in bold. It is good practice to teach learners to insert both opening and closing tag first before adding any content.

 **Activity 15.1** **Memorandum**

1. Create the basic structure of the webpage using the correct document tags. Give the web page the title "Personal Information".
2. In the body of the web page do the following:
  - a. Display the text 'All about me!' as the main heading on the page.
  - b. Display the text 'Favourite sports' as a level 2 heading. Display a horizontal line under this heading.
  - c. Write the names of two sports you enjoy doing or watching under this heading. The name of the sports must be in a paragraph but each one must display on a new line.
  - d. Display the text 'Favourite Subject' as a level 2 heading. Display a horizontal line under this heading.
  - e. Write two short paragraphs explaining why the subject is your favourite.
  - f. Include the name of the teacher of this subject in one of the paragraphs. The teacher's name should be displayed in bold.
  - g. At the end of the document just before the closing tag type in 'Created by [your name]'. Use a tag to ensure that this text is NOT displayed in the browser.

This is a higher order question. Learner's must infer from the question that a comment is required.

The expected HTML is shown below.

3. Save and close the file *ACT 15\_1.html*.

```
<html>
  <head>
    <title>Personal Information</title>
  </head>

  <body>
    <h1>All about me!</h1>

    <h2>Favourite sports</h2>
    <hr />
    <p>Cycling <br />
    Cricket</p>

    <h2>Favourite Subject</h2>
    <p>My favourite subject is CAT. We have a cool teacher, <b>
    Ms Tech</b>.</p>
    <p>In CAT we spend a lot of time playing on computers.</p>

    <!-- Created by Joe -->
  </body>
</html>
```

Learners should be encouraged to indent their code as in the example above.



## Activity 15.2

## Memorandum

Study the screenshot of a web page below carefully.



1. Open a new file in Notepad++. Save the file as *Act 15\_2.html*.
2. Add the basic document tags to create a webpage. The text "Labrador Retriever" must appear on the browser tab.  
*Check for <html> </html>, <head> </head>, <title>Labrador Retriever</title> and <body> </body> in the correct place (see below).*
3. Using the screenshot as a guide, add tags and attributes to the body to create a webpage which is the same as the one in the screenshot.

*All HTML to answer this question should be between the <body> and </body> tags.*

- The background colour of the page should be light yellow.  
*The attribute bgcolor="lightyellow" should be added to the <body> tag*
- There is only one level 1 heading on the page.  
*The "Labrador Retriever" should be formatted as an <h1> heading.*  
*The heading is centre aligned.*  
*There is a horizontal line <hr /> under the heading.*
- The main heading uses the Comic Sans MS font.  
*The font face is given. Learners must add the centre alignment and red colour themselves.*
- The other headings use the Arial font.  
*Learners must add the colour brown themselves.*  
*Both occurrences on the word Labrador should be formatted as italics.*

4. Save your work regularly and preview it in a browser as you are working.  
*This activity requires the learners to analyse the screenshot and decide which markup tags should be used. This activity has a high cognitive demand, especially question 3. The expected HTML code is shown below.*

```
<html>
<head>
  <title>Labrador Retriever</title>
</head>

<body bgcolor = "lightyellow">

  <h1 align="center"><font face="Comic Sans MS" color="red">
  Labrador Retriever</font></h1>
  <hr width="75%" size="2"/>

  <h2><font face="Arial" color="brown">One of the most
  popular dog breeds</font></h2>

  <h3><font face="Arial" color="brown">Appearance</font></h3>
  <p><i>Labrador</i> Retrievers can be up to 62 cm tall and
  weigh about 36 kg. They are well proportioned dogs with
  broad heads and long legs</p>

  <p><i>Labrador</i> coats come in three colours: black,
  yellow and chocolate</p>

  <h3><font face="Arial" color="brown">Temperament</font></h3>
  <p>Labradors are fun loving dogs that love human company.
  They are usually not aggressive</p>

</body>
</html>
```

## WRITTEN ACTIVITY

Study the following code:

```
<html>
  <head>
    <title>Critical information</title>
  </head>
  <body>
    <center>
      <h1>Hello World!</h1>
      <p>A “Hello World!” is any computer program that outputs the text
“Hello World!” to the user.</p>
      <p>Since this is a relatively easy task, it is often the first
program that programmers learn to create.</p>
      <h2>History</h2>
      <p>The “Hello World!” program was first included as a beginner’s
program in a book from 1972 called <i>A Tutorial Introduction to the
Language B</i>.</p>
    </center>
  </body>
  <h2>Challenges</h2>
  <p>Programmers often like to challenge themselves by finding strange
and funny ways to code “Hello World”, or to create it on strange
devices, such as calculators.</p>
</html>
```

1. Based on the code, answer the following questions in your own words.
  - a. What is the title of the page? (1)  
*Answer: Critical information*
  - b. How many headings are there on the page? (1)  
*Answer: Three*
  - c. How many paragraphs of text are there? (1)  
*Answer: Three*
  - d. What information should be placed in the body section? (1)  
*Answer: All the heading and paragraph tags as well as any images.*
  - e. Are there any lines of code that should be moved to the body section? (1)  
*Answer:*  
*The heading ‘Challenges’ and the content in the <p> below that.*  
*OR*  
*<h2>Challenges</h2>*  
*<p>Programmers often like to challenge themselves by finding strange and funny ways to code “Hello World”, or to create it on strange devices, such as calculators.</p>*
2. Name two elements of an HTML document. (2)
3. Explain the difference between the World Wide Web and a website. (4)
4. Why would you use comments in a web page? (2)
5. Name three advantages of using formatting and structural elements in a web page. (3)

## PRACTICAL ACTIVITY

1. Use a text editor to create a web page using your knowledge of HTML elements and tags to give some info about South African School Sports. Follow the following guidelines to create a web page: (20)
- Use Notepad to create a document. Save it as an HTML document.
  - The title of the web page is 'School Sports'.
  - Create the following headings:
    - Heading 1: Popular sport codes
    - Heading 2: Summer sports
    - Heading 2: Winter sports
    - Heading 3: School policy with regards to sport
    - All headings must be formatted in bold.
    - All headings must have a horizontal line in between.
  - Write the following paragraphs after each heading:
    - P1: The most popular sports in South African schools are; rugby, netball, athletics, soccer and cricket.
    - P2: In South Africa athletics and cricket are played during the summer months.
    - P2: In South Africa netball, rugby and soccer are played during the winter months.
    - P3: Learners must be accompanied by an educator when they compete against learners from other schools.

Save the web page and view it in a browser.

*Use the following as an assessment guideline*

	Criteria	Total marks
	Does the web page include the following?	✓
a	Title	
b	Headings	
c	Text	
d	Images	
e	Links	
f	Basic styling	

**TOTAL: [36]**



## CHAPTER OVERVIEW

Unit 16.1 HTML and web design

Unit 16.2 HTML links and images



The following learning outcomes are covered by this chapter:

- Identify and use the correct attributes and syntax for HTML links, images and lists.
- Describe the principles of good website design.

GRADE: 11

DATE:

TEACHING TIME: 6 hours

## Resources

Each learner should have access to:

- CAT 11 textbook
- Workbook
- Computer with Windows 10
- Mouse
- Keyboard
- Internet
- QR reader

## INTRODUCTION

Now that learners understand the basics of how a website is made, they need to learn about what a website needs to look like. A well-designed website is one that is easy to navigate, easy to read and good to look at. In this chapter, they will learn about the basics of good web design and how HTML works to make a website look good and be user-friendly. They will also learn about HTML links, images, lists and the correct attributes and syntax for these elements.

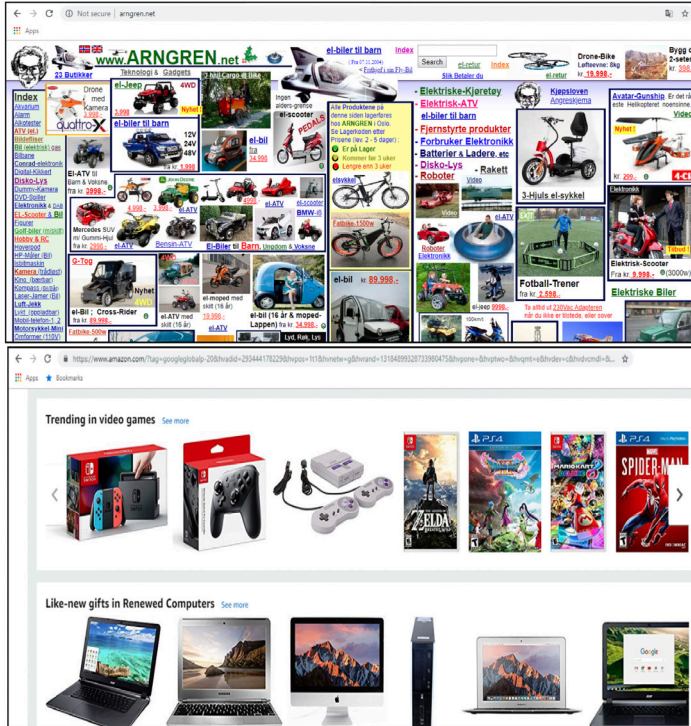




Activity 16.1

Memorandum

- Look at the screenshots taken from two different online stores. Using your knowledge of good and bad website design, answer the questions below.



Name four things which make Arngren a badly designed website?

Answer: Possible answers:

- Too much information/products
- No empty or negative space
- Too many colours
- Bad layout/too condensed
- No logical order/no clear categories of products/disorganised
- Difficult to navigate
- It is cluttered with many irrelevant images and information

- Explain why the second screenshot of Amazon, is a better designed site?

Answers: Possible answers

- Neat/enough negative space
- There is not an overload of information and products
- All products are easy to see
- Clearly organised in categories
- The product images are clear and descriptive
- It provides suggestions for popular products
- Easy to navigate

- What could Arngren do to improve on their website design?

Answers: Possible answers

- Have less products on a page.
- Categorise the products
- Use less colour and more negative space
- Have less information on a page.
- Make sure that the navigations buttons are easy and clear to see.
- Get rid of all the irrelevant clutter.

A web page has been created to give some first-hand information to visitors who are totally unaware of uShaka Marine World and the unlimited fun it has in store for them. Open the incomplete uShaka web page in a web browser and also in a text editor, e.g. Notepad. NOTE: Question numbers are inserted as comments in the coding as guidelines to show approximately where the answer(s) should be inserted. Your final web page should look like the example below.

## Unlimited Fun for EVERYONE!

---

### Chimp & Zee Rope Adventure:

- Longest belay system in the world - two levels of difficulty (intro (18 elements) and intermediate (17 elements) including)
- 2 exciting zip lines over Rocky Reef and the turtle enclosures

### Wet n wild:

- 17 slides including highest slide in the southern hemisphere

### Sea World:

- A. Africa's leading marine education Facility
- B. SA's only Dolphin Show
- C. Gambit eThekweni Living Legend
- D. Largest aquarium in the southern hemisphere extending 500 meters through four ship wrecks

### Dangerous Creatures:

1. New Black-throated monitors aka The Dragons
2. Burmese Python Photo Opportunity

### Kids World:

- Feathered Friends - Parrots, Sulphur-Crested Cockatoos, Green Wing and Blue & Gold Macaws.
- Africa's largest jungle gym

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For more information, call 031 328 8000  
Or Visit  
[www.ushakamarineworld.co.za](http://www.ushakamarineworld.co.za)



1. Add the HTML code so that the text Unlimited Fun@uShaka appears in the browser tab. (2)
2. Change the background colour of the web page to yellow. (1)
3. Change the font of the whole web page to Century Gothic. (2)
4. Correct the HTML code to display the heading Unlimited Fun for EVERYONE! in heading 1 style. (1)
5. Insert a horizontal line after the heading Unlimited Fun for EVERYONE! and before the last line of the web page starting with "For more information ...".
  - The colour of the horizontal lines should be red.
  - The size should be 4. (3)
6. Locate the items under the heading Sea World. Make the following changes:
  - Display it as an ordered list.
  - The list should be in the format A,B,C. (2)
7. Insert the image Fun Unlimited.jpg before the heading Wet 'n Wild and do the following:
  - Set the height of the image to 50% and width to 25% respectively.
  - Align the image to the right.
  - Insert an alternative text to display Unlimited Fun if the image does not display. (6)
8. Display the sentence 'call 031 328 8000' found at the bottom of the web page as italics. (1)
9. Link the web address found at the bottom of the web page that reads 'www.ushakamarineworld.co.za' to the same web address. (2)

Use the following checklist as an assessment guideline:

	Criteria	Total marks
	Did the learner . . . . .	✓
1.	Add the HTML code so that the text Unlimited Fun@uShaka appears in the browser tab	
2.	Change the background colour of the web page to yellow.	
3.	Change the font of the whole web page to Century Gothic.	
4.	Correct the HTML code to display the heading Unlimited Fun for EVERYONE! in heading 1 style.	
5.	Insert a horizontal line after the heading Unlimited Fun for EVERY-ONE! and before the last line of the web page starting with For more information . . .	
a.	Make the colour of the horizontal lines red	
b.	Use size 4	
6.	Locate the items under the heading Sea World. Make the following changes:	
a.	Display it as an ordered list	
b.	Make sure that the list is in the format A,B,C	
7.	Insert the image Fun Unlimited.jpg before the heading Wet 'n Wild and do the following:	
a.	Set the height of the image to 50 percent and width to 25 percent respectively.	
b.	Align the image to the right.	
c.	Insert an alternative text to display Unlimited Fun if the image does not display.	
8.	Display the sentence 'call 031 328 8000' found at the bottom of the web page as italics.	
9.	Link the web address found at the bottom of the web page that reads 'www.ushakamarineworld.co.za' to the same web address.	

**TOTAL: [20]**