BSB 7.0

BSBTEC302

DESIGN AND PRODUCE SPREADSHEETS

Aspire
Learning Resources

BSBTEC302

Design and produce spreadsheets

Release 1

Learner Guide

Aspire Version 1.1

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- Foundation skills
- LLN and employability skills (non-competency)
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BSBTEC302 Design and produce spreadsheets, Release 1

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Before you begin

This Learner Guide is based on the unit of competency *BSBTEC302 Design and produce spreadsheets*, Release 1. Your trainer or training organisation must give you information about this unit of competency as part of your training program. You can access the unit of competency and assessment requirements at:
www.training.gov.au.

How to work through this Learner Guide

This Learner Guide contains a number of features that will assist you in your learning. Your trainer will advise which parts of the Learner Guide you need to read, and which Practice Tasks and Learning Checkpoints you need to complete. The features of this Learner Guide are detailed in the following table.

Feature of the Learner Guide	How you can use each feature
Learning content	Read each topic in this Learner Guide. If you come across content that is confusing, make a note and discuss it with your trainer. Your trainer is in the best position to offer assistance. It is very important that you take on some of the responsibility for the learning you will undertake.
Examples	These highlight key learning points and provide realistic examples of workplace situations.
Practice Tasks	Practice Tasks give you the opportunity to put your skills and knowledge into action. Your trainer will tell you which practice tasks to complete.
Summaries	Key learning points are provided at the end of each topic.
Learning Checkpoints	There is a Learning Checkpoint at the end of each topic. Your trainer will tell you which Learning Checkpoints to complete. These checkpoints give you an opportunity to check your progress and apply the skills and knowledge you have learnt.

Foundation skills

As you complete learning using this guide, you will be developing the foundation skills relevant for this unit. Foundation skills are the language, literacy and numeracy (LLN) skills and the employability skills required for participation in modern workplaces and contemporary life.

The following table provides definitions for each foundation skill.

Foundation skill area	Foundation skill description
Reading	▪ Recognises and interprets numerical and textual information to determine organisational and task requirements
Writing	▪ Inputs numerical and key reporting information when creating and finalising spreadsheets and uses format, layout, style guides and standard naming conventions to organise data according to purpose and audience
Numeracy	▪ Uses mathematical equations to create simple formulae and validate numerical data
Teamwork	▪ Collaborates with others to achieve joint outcomes
Technology	▪ Uses advanced features within relevant digital applications to address routine and complex work tasks

What do you already know?

Use the following table to identify what you may already know. This may assist you to work out what to focus on in your learning.

Topic	Key outcome	Rate your confidence in each section
Topic 1: Prepare to use spreadsheets	1A Using safe and efficient work practices	❑ Confident ❑ Basic understanding ❑ Not confident
	1B Identifying task requirements and selecting the best application	❑ Confident ❑ Basic understanding ❑ Not confident
Topic 2: Design and create spreadsheets	2A Entering data and formatting cells	❑ Confident ❑ Basic understanding ❑ Not confident
	2B Using and testing formulas and functions	❑ Confident ❑ Basic understanding ❑ Not confident
Topic 3: Produce charts	3A Selecting an appropriate chart type and design	❑ Confident ❑ Basic understanding ❑ Not confident
	3B Creating and modifying charts	❑ Confident ❑ Basic understanding ❑ Not confident
Topic 4: Finalise and present spreadsheets	4A Finalising and reviewing spreadsheets	❑ Confident ❑ Basic understanding ❑ Not confident
	4B Printing spreadsheets	❑ Confident ❑ Basic understanding ❑ Not confident
	4C Naming and storing spreadsheets appropriately	❑ Confident ❑ Basic understanding ❑ Not confident

Topic 1 | Prepare to use spreadsheets

1A Using safe and efficient work practices

1B Identifying task requirements and selecting the best application

1A Using safe and efficient work practices

Workplace safety is everyone's responsibility.

Both employers and employees must make an active contribution to ensuring their workplace is safe. They need to identify hazards and assess risks to reduce the risk of injury in the workplace.

If you are working at a computer for an extended period of time each day, your workstation must be comfortable and designed to help you carry out your tasks efficiently. You will need to organise your work so that you are not doing a repetitive task for a long time. You should also take regular breaks to stand up and stretch.

To increase efficiency, you can also use sustainability techniques to prevent wastage. Most organisations require staff to follow sustainability procedures such as recycling paper and turning off lights in unused rooms. You need to be aware of any conservation efforts made by your organisation.

Health and safety policies and procedures are documents that ensure all employees work safely and effectively.

All workplaces in Australia are required to have a health and safety policy in place that describes the organisation's responsibility and employees' responsibility for maintaining health and safety. The policy should include the organisation's goals and objectives regarding health and safety and can help you fulfil your duty of care as an employee.

The following information relates to working in an office and using a computer workstation and should be contained in an organisation's health and safety procedures.

Health and safety procedures outline:

- workstation ergonomics
- standard safety precautions and housekeeping
- safe handling of hazardous substances, e.g. cleaning products
- emergency and fire drills
- hazard identification and risk control
- manual handling
- emergency contact numbers, including local doctors and hospitals
- location of first-aid equipment
- details of first-aid officers.

Musculoskeletal disorders

Gradual wear and tear or sudden damage can cause musculoskeletal disorders.

The repetitive movements and sustained body position associated with entering data into a computer is regarded as a hazardous manual task and puts the operator at risk of developing a musculoskeletal disorder, or MSD. MSDs are caused in two main ways:

- gradual wear and tear to joints, ligaments, muscles and inter-vertebral discs through repeated or continuous use of the same body parts, including static body positions
- sudden damage caused by strenuous activity or unexpected movements, such as when loads being handled move or change position suddenly.

MSDs may include conditions such as:

- sprains and strains of muscles, ligaments and tendons
- back injuries, including damage to the muscles, tendons, ligaments, spinal discs, nerves, joints and bones
- joint and bone injuries or degeneration, including injuries to the shoulder, elbow, wrist, hip, knee, ankle, hands and feet
- nerve injuries or compression, e.g. carpal tunnel syndrome
- muscular and vascular disorders as a result of hand–arm vibration
- soft tissue hernias
- chronic pain.

Standard precautions

Your organisation may require you to use standard precautions, particularly work practices related to the prevention of repetitive strain injuries (RSIs).

These include ergonomic practices, workstation design, enforced breaks and regular exercise routines. A workstation includes a computer, monitor, keyboard, mouse, desk and chair.

Workers in an office are expected to follow standard precautions when using a workstation, particularly at a sit-down desk. Research on sitting has demonstrated that other precautions also need to be considered, such as the use of standing workstations, to ensure that injuries are prevented. It is important that you carefully follow any standard precautions that are prescribed for your workplace.

Equipment and systems safety checks

An important part of your daily work routine is to check the various systems and equipment you use during the day to make sure they are in good working order.

Your organisational policies and procedures should include steps to follow. You may need to perform this procedure at the start of your work day or at specified intervals throughout the day.

Workstation safety procedure/checklist:

- ❑ Ensure your seat is positioned in front of your computer and that you can reach your keyboard comfortably.
- ❑ Position the monitor out of direct sunlight and at the correct height.
- ❑ Ensure the environment is dust-free as dust can affect the monitor or the computer's central processing unit (CPU).
- ❑ Ensure cables are secured so no one trips over them.
- ❑ Use blinds and window coverings to reduce glare and heat at your workstation.
- ❑ Ensure temperatures do not exceed 26°C and that humidity is between 40 and 60 per cent.

Ergonomics

The aim of ergonomics is to reduce the risk of accidents, injury and illness by applying safe work practices.

Ergonomics is about creating comfortable working conditions by adapting workstations, tools and equipment to an individual worker's needs. It also improves performance and productivity in the workplace. Ergonomics covers all aspects of working, from physical stresses such as sitting at a workstation all day, to environmental factors such as noise, air conditioning and lighting.

When your posture is poor, you may suffer from aches and pains. Spending a long time in the same position can put stress on your body and this can be made worse if you are in an uncomfortable or poorly supported position. These symptoms may be very slight at first, but if you continue to have poor posture your symptoms may get worse and become intolerable. They may result in cumulative stress, given the constant strain on your muscles, nerves or tendons.

When setting up your workstation, make sure your posture will not cause you pain or discomfort. The equipment you use needs to be adjusted to suit your body shape and size, and the tasks you are doing.

Ergonomic workstation design

Ergonomic workstation design can reduce the risk of health issues or injury in the workplace.

Several physical problems can result from poor workstation design; for example, lower back strain may result from sitting in a chair that does not support your back. Some features of the workstation may vary depending on the type of computer work being performed.

Below are some guidelines for setting up an ergonomic workstation.

Chair

- Adjust the seat height to suit your furniture and equipment. Ensure that your feet are flat on the floor, your thighs are horizontal and your lower legs are vertical. If possible, use a chair with a five-castor base.
- Adjust the backrest by raising it to the maximum height and then lowering it until it fits the curve of your lower back. If this is not comfortable, lower it another couple of centimetres. Continue this until it reaches a comfortable position.
- The backrest should support your lower back and may also be adjusted backwards and forwards. When seated in your usual working position, move the backrest until it has a gentle pressure on your lower back. Make sure there is at least two centimetres of space between the front of the seat and the back of your knees. Armrests should be positioned so that they do not interfere with carrying out your work tasks.

Desk

- Keep your head erect when seated at your desk, and ensure that the surface of the desk is just below elbow height.
- If your desk is not height-adjustable, try to raise your chair so you are sitting at the correct height, and use a footrest, if necessary, to make up the difference. Ensure there is clearance between the lower edge of the desk and your legs, and between the front edge of your seat and your desk.
- If your desk is too low, you may be able to extend the legs. You should have plenty of leg space underneath your desk. Do not clutter the space with bags and bins, as your legs may become cramped and your posture may become twisted.
- Position any equipment or materials you use so that you can reach them easily without twisting. For example, place frequently used stationery in the top desk drawer, and ensure your keyboard and monitor sit directly in front of you to avoid having to twist your body.

Keyboard

- The angle of your keyboard can be adjusted to suit you by moving the supports underneath it. Place the keyboard as close as possible to the front of your desk. Have your upper arms hanging freely. Your forearms should be approximately horizontal.
- While typing it is best not to rest your wrists, as they should not be bent up, down or to the side. The knuckle, wrist and top of the forearm should form a straight line. Wrist supports give you a place to rest your hands only when pausing from typing, not while you are typing. Do not pound the keys; instead, use a light touch. Leave enough room on your desk to put the keyboard out of the way when you are not using it.
- Do not place documents between yourself and the keyboard, as stretching will eventually cause muscle strain in your arms, shoulders and neck.

Mouse

- Place the mouse and mouse pad directly beside your keyboard on the side you prefer. If you use the mouse frequently, you could try to alternate sides. You will be surprised at how easy this becomes with practice. Your wrist should be straight and the desk should support the weight of your wrist, not your arm. Try to keep your wrist flat and rest your fingers on the mouse between clicks. Hold the mouse lightly. Do not hold onto the mouse when you are not using it.

Monitor

- Once you have adjusted your chair and desk, you can position your monitor. Adjust it so that the top of the monitor is level with or slightly lower than your eyes. If you cannot adjust the monitor to the correct height, place it on a platform.
- The viewing distance should be between 40cm and 70cm. The screen angle should be adjustable between 85 and 125 degrees. It is best to position the screen so that you can clearly read the text without having to lean forward, twist your neck or look upwards. A relaxed viewing angle is approximately 35 degrees. Place a document holder beneath or beside the monitor at the same viewing distance as the screen.
- When positioning your screen, take surrounding factors such as reflection, glare and shadow into consideration. You may need to use an anti-glare filter.

Desktop layout

Items on your desk, including equipment and resources, should be arranged so they are in easy reach.

Your desk area can be divided into three zones:

- the optimum reach zone – the area closest to you, where your hands operate most of the time
- the maximum reach zone – items are further away, but still close enough to reach comfortably
- the outer reach zone – where you may have to bend forward or stand to reach items.

Make sure your desk is organised so that frequently used objects, such as your keyboard, are close to you. Objects that are used less frequently, such as your phone, should be out of the way but still within easy reach. Other resources that are rarely used, such as in- and out-trays, should be in the outer reach zone.

The following outlines some devices that can help you maintain a good posture at your workstation.

Document holders

Document holders are designed to hold papers and reference material in a convenient position for viewing. Place your document holder in the correct position. If it is below the screen or too far off to the side, each time your eyes look from one source to the other, your pupils have to adjust. Doing this for long periods of time can cause headaches and eyestrain. Place the document holder at a similar level, angle and distance as the screen to avoid having to shift your eye focus.

Angle boards

Angle boards allow the user to maintain the correct posture when reading by reducing the angle between the work surface and the user. These supports can be adjusted to a suitable height and angle, and enable comfortable reading with the neck correctly positioned. Try to keep your neck as straight as possible when you are reading.

Footrests

A footrest may be necessary if you cannot place your feet comfortably on the floor. Footrests allow your feet to rest at the correct height and on a tilting angle, which prevents strain on the lower back.

Headsets

If you use a telephone for long periods of time, it is a good idea to use a headset. A headset will keep your neck straight and your arms free. Headsets prevent you from bending your neck to support the telephone handpiece.

Benefits of using standing desks

Sitting at a desk for long periods of time has many negative health effects.

These can be overcome by using standing desks. Standing provides a greater opportunity for your body to move and adjust, and involves more muscular activity than sitting.

Some studies have shown that the negative effects of prolonged sitting cannot be counteracted by regular exercise. The only way to eliminate the problem is to avoid sitting as much as possible.

Some of the health benefits of standing include:

- alleviating back pain and other repetitive strain injuries by greater use of core back muscles to support the upper body
- increasing focus, alertness and activity level by releasing restless energy
- reducing the risk of developing cardiovascular disease, diabetes and blood clots, which can be caused by prolonged sitting.

It is recommended that you start using a standing desk gradually by alternating between sitting and standing. Using a standing desk for hours on end requires your body to adapt. You may experience sore feet, tired legs and fatigue at first. Wear comfortable shoes and use an anti-fatigue floor mat to help counteract this.

Ensure you have an ergonomically designed standing desk so that you maintain correct posture while working.

Standing desk recommendations
▪ Position arms at 90 degrees when standing.
▪ Place the computer screen at eye level and tilt it slightly upwards.
▪ Place the computer monitor at least at arm's length away.
▪ Keep your back straight and avoid leaning on the desk.

Vary your activities

Make sure you plan your daily tasks so that you are not doing repetitive work for long periods of time.

Having a well-planned workstation and comfortable surrounding is pointless if you do not organise your work in a way that prevents discomfort or pain.

Your work role may involve several different tasks. Some tasks may be repetitive, such as typing up reports or entering data. If you are able to vary the tasks you carry out each day, this will help to prevent repetitive actions that cause stress to your body. For example, if you have to enter a lot of data, break up the repetitive nature of the task by discussing a project with a colleague, doing some research online or doing another work task.

You should also take regular breaks. Employers are required to allow employees to take rest periods throughout the day, including tea breaks and lunch breaks, to reduce stress and fatigue.

Take exercise breaks

Using computers for too long without breaks has been associated with back and neck pain, headaches, migraines and eyestrain.

Try the following exercises several times a day, and encourage your colleagues to try them, too. Make sure you are relaxed and stretch gently, without overstretching. Stop if you feel any pain or discomfort, and remember to exercise both sides of your body. Most importantly, breathe deeply and evenly throughout the stretch.

- Neck: Turn your head gently to look over your right shoulder. Hold for 10 seconds. Now roll your head forward to look over your left shoulder and hold for 10 seconds. Repeat several times.
- Shoulders: Sitting with a straight back and neck, roll your shoulders forward, then back. Repeat several times.
- Wrists, hands and arms: Interlacing fingers, turn your palms upwards. Now lift your arms over your head and stretch, leaning gently to the left and then to the right. Repeat movement several times.
- Upper and lower back: In a standing position, place your hands in the small of your back. Gently arch your back and hold for 10 seconds. Repeat when needed.
- Shoulders and arms: Stretch your arms above your head, cradle your elbow with your hand and gently pull your elbow behind your head. Repeat on the other side, holding the stretch for 10 seconds.
- Eyes: Every 20 minutes, look away from the screen. Focus on a distant object (more than three metres away).

Practise conservation techniques

Conserving resources at work not only benefits the organisation by reducing costs, but also benefits the planet by reducing greenhouse gases and the amount of waste sent to landfill.

Most organisations have policies and procedures for conserving resources. You can find out what these are by reading your workplace manual, or by asking your manager or colleagues.

The following outlines ways to conserve resources at work.

Minimise paper wastage

Policies for reducing paper wastage include:

- using both sides of the paper when printing and photocopying
- recycling non-confidential waste paper
- reducing the volume of printing where possible
- reusing paper by using blank sides for rough drafts
- using recycled paper or paper from plantation timber for printed documents.

Reduce energy use

Policies and procedures for saving energy include:

- providing training programs on smart energy practices so that employees can practise energy efficiency
- turning off lights and equipment when not in use
- keeping air conditioners at 18–20°C in winter and 24–27°C in summer
- using power-saving functions on devices such as computers and tablets.

Practice Task 1

Question 1

Here is a checklist to follow when setting up your workstation. Go through the points that are relevant to you and make any necessary adjustments to your work area. You may need another person to help you and check your posture. If you are not able to tick some of the checkpoints, discuss making alterations to your workstation with your manager.

Chair

- ❑ Is the seat height-adjustable?
- ❑ Is it high enough to allow you to sit comfortably at the keyboard?
- ❑ Is it stable?
- ❑ Does it swivel?
- ❑ Is the height of the backrest adjustable and does it tilt backwards and forwards?
- ❑ If it has arms, can you still get close enough to the desk and swivel the chair?
- ❑ Are your feet flat on the floor or are you using a footrest?
- ❑ Are you sitting up straight with the backrest firm against your back?

Desk

- ❑ Is it large enough to allow the screen and keyboard to be correctly positioned?
- ❑ Is it low enough to allow you to keep your forearms horizontal or sloping downwards?
- ❑ Is it high enough to allow your thighs to fit comfortably underneath?

Keyboard

- ❑ Can it be tilted to allow you to adjust it?
- ❑ Are the symbols on the keys clear and easy to see?
- ❑ Is there sufficient space in front of it to allow you to correctly position your arms?

Monitor
❑ Does the monitor have easily adjustable brightness and contrast controls? ❑ Is the image on the monitor stable and flicker-free? ❑ Are there adjustment mechanisms to allow the monitor to be tilted, swivelled or raised to avoid glare and reflections, and help you keep a natural and relaxed posture? ❑ Are you sitting far away enough from it for comfort?

Question 2

Describe the possible consequences for an organisation in which employees do not consider their physical health.

Question 3

What should a Work Health and Safety (WHS) policy include?

Question 4

What should WHS procedures include?

Question 5

Why should you vary the tasks you carry out each day?

Question 6

Read the following statements about sustainability in the workplace and decide whether they are true or false.

a) Screen savers help to save energy. » True » False

b) Turning off a computer crashes the hard drive. » True » False

c) Refilled toner or ink cartridges leak everywhere and make a huge mess. » True » False

d) Putting computers into sleep mode when they are inactive helps to save energy. » True » False

e) Printing and filing all documents in hard copy does put a high demand on resource consumption. » True » False

1B Identifying task requirements and selecting the best application

All organisations need to manage and store numerical data, and a spreadsheet is the most appropriate tool for doing this.

Organisations use spreadsheets to store and calculate numerical data, which can then be used to produce such things as charts, graphs, statements and reports. In accounting, a spreadsheet is a large sheet that displays a company's financial position. It shows all financial information, such as costs, income and taxes on a single sheet. This is useful for a manager to look at when making a decision.

An electronic spreadsheet organises information into columns and rows. The data can then be manipulated by a formula to provide a sum total. The spreadsheet can present the information in a format to help a decision-maker see the financial big picture of an organisation.

You also need to know the location and procedure for the electronic filing system for storing spreadsheets. This is a normal part of using any computer application and it is part of workplace protocol. It is important to ensure you store your spreadsheet for easy access by you and your colleagues.

Many organisations have specific requirements about how data is stored and the way it is displayed and presented. Organisations often have a style guide that outlines the specifications and design requirements, such as use of headings, particular colours, borders and shading, columns and rows.

You must be aware of these requirements so your spreadsheet meets your organisation's standards. These requirements can relate to how the data is entered, stored, presented and produced. These usually have to be completed in a designated timeline to meet a deadline.

Use instructions on organisational and task requirements to check that the job has been completed correctly.

Identify purpose and audience

When planning your spreadsheet, it is important to know what it is going to be used for and who is going to use it.

Spreadsheets are created for many reasons, including:

- accounting and calculations
- tracking spending
- budgeting
- assisting with data exports from one system to another
- creating quotes, receipts and invoices
- generating reports and charts.

The purpose of a spreadsheet varies and will influence the type of document you produce and the data you use to populate the spreadsheet. Clarify the purpose of the spreadsheet before you begin to determine the way it is planned and designed. For example, if the document's purpose is to provide numerical data on sales figures, you may have to collect the information and collate this into the spreadsheet.

Intended audience

Before you design the spreadsheet, you need to be aware of your document's audience. Keep in mind who it is intended for and decide how you should present the information. The document's audience will affect how the information is presented. Consider the information needs of the audience and how detailed the information should be.
A detailed document is likely to have many columns and rows, or may extend over several sheets.

You may want to consider the following questions:

- Who will be using the spreadsheet?
- Are they familiar with using spreadsheet applications?
- Do they need to collaborate online?
- Are they required to enter data or just review the information?

Identify task requirements

Ensure you understand all the requirements of the task before you begin. You know what the spreadsheet is going to be used for and who is going to use it, but you also need to find out the following:

- Is data entry required or is the data already available?
- Where is the data stored and where should the spreadsheet be saved?
- When does the task need to be completed?
- Does any of the data need to be represented as graphs or charts?
- Are printouts or electronic copies required?

The answers to these questions will help you prepare for designing your spreadsheet.

Storage and output

Once you have entered data into your worksheet, you need to know what the required output is, how it should be presented and where it should be stored.

Your manager may need you to enter monthly sales figures and provide a total amount. In this case you need to add a column labelled 'Total'. You may need to format your spreadsheet to match organisational requirements; for example, you may need to use a certain font type and size for labels, and include precise information in the header and footer.

Where you store your spreadsheet depends on who needs the information. When you create a spreadsheet, you need to save it immediately. You can save it to your personal hard drive or to a shared drive on your organisation's server. A server delivers information to other computers linked by a network. Ask your manager where you should save your spreadsheet to ensure you are adhering to company protocols.

When you start a new spreadsheet, you should think about how you want the spreadsheet to present the results, or output, of its calculations.

Some points about output to keep in mind include:

- Who is going to use the results?
- What are the results that will be useful to them?
- How are they going to use them?
- What format will they want them in?
- What labels should you put on any number results so people can understand what they are?
- Is the output going to be printed, stored or sent to someone electronically?

Determine and meet timelines

Whenever you are given a work task, you need to determine a timeline for its completion.

A timeline is a plan for how long a task will take to complete. It also breaks the task into steps, and states when each step needs to be completed. Using a diary system and a to-do list can help you prioritise tasks and keep on top of the timelines required for set tasks.

In many cases, timelines are set and agreed with your stakeholders – both internal and external. Internal stakeholders work in the same organisation as you, and may include colleagues in other departments, managers and supervisors. External stakeholders, including customers and suppliers, are outside of the organisation.

Often your manager or supervisor will give you a deadline for completing a task, such as 'prepare a spreadsheet by 2pm'. Alternatively, you may have deadlines for completing regular work tasks, such as completing a monthly sales report or a summary of customer contact details.

Meeting a deadline demonstrates your competency in undertaking tasks, as well as showing your professionalism. Make sure that when deadlines are set, they are both achievable and realistic.

If you have concerns that a deadline might not be met or you have conflicting priorities, discuss this with your manager or supervisor as soon as possible. They may be able to assist you by suggesting how the deadline can be met or agreeing to adjust the timeline for the task.

Presentation requirements

Every organisation has different requirements for business documents.

How you present your spreadsheet will enhance the audience's ability to understand it.

You need to check if there is a template for the task, such as a template for a presentation, handout or report. Think about the use of colour, columns and rows, logos and formatting requirements.

There are often guidelines or instructions for producing a spreadsheet, which help to communicate an organisation's professionalism to those outside of it. These may relate to the content of the spreadsheet or its format and layout.

One important requirement may be to present an appropriate and consistent corporate image by using the organisation's logo, colour scheme and house style.

Most organisations outline document production procedures and guidelines either in their policies and procedures manual or in an in-house style guide. Make sure you know where these instructions are kept and that you are familiar with them.

The requirements appropriate for one organisation may not suit another; for example, a law firm's requirements would be different from that of a sports equipment retailer.

You may be asked to prepare a report about stock on hand and to arrange the data in product code order, highlighting the quantity on hand and the quantity on order. You may also be asked to cross-check product codes with the product description.

Clarify the use of house styles for your organisation with your supervisor and colleagues, and ask what the requirements are for the job you are going to undertake before you begin. If you have your own ideas on how the content or format of a spreadsheet could be improved, speak to your supervisor.

To prepare appropriate documents for your organisation, you must follow established guidelines and procedures for production.

Established guidelines and production procedures may include:

- monitoring the designated timeline
- adhering to content restrictions
- using templates
- including the organisation's name, time, date and file name in the header and footer
- observing copyright legislation
- delivering the content in the required format.

Practice Task 2

Part A

Question 1

Explain why it is important that you find out information from your supervisor in relation to the following before you begin a task:

a) The purpose of the spreadsheet

b) The intended audience

Question 2

What can you do to ensure the presentation requirements, such as layout and design of the spreadsheet, meet the professional and corporate image of an organisation?

Part B

Read the case study, then answer the questions that follow.

Case study

Phuong works as an administrative officer for a local council. She has recently moved into the community development department from the rates department and is looking forward to the change. Phuong has been asked by her supervisor to create a spreadsheet report summarising the number and type of small businesses in the area, and to include a chart that shows the clustered locations of the businesses. Phuong is familiar with using spreadsheets and creating charts from her time in the rates department. However, she is not sure how to find the information to include in the report – does it mean that she has to go out and visit all the small businesses in the area?

Phuong decides to speak with her supervisor to clarify what is required to produce the report. Phuong's supervisor explains that it is a report which is completed on an annual basis, so she should be able to access last year's report from the network drive. However, her supervisor is not sure of the spreadsheet name, so she will need to a look for it. Her supervisor suggests that she follows the same layout and presentation as last year's report, although she should check that it has the current council logo in the heading. Phuong asks her supervisor who the report is for to check output requirements. Her supervisor explains it is to be presented at the upcoming management meeting next Friday. Her supervisor has asked that she complete a draft of the spreadsheet by Wednesday morning so that he can check the report. Once checked, 15 copies of the report need to be produced.

Phuong goes back to her desk and locates last year's report. She now knows how it should look. She also knows her deadline, the reason for producing the report and how many copies are required. She obtains data from another report that was produced by her co-worker last month. Phuong is able to use this report as her source document for creating the report she has been asked to complete.

Question 1

What is Phuong's task?

Question 2

What does Phuong do to clarify task requirements?

Question 3

What additional sources of information were helpful to Phuong in producing the report?

Selecting a suitable spreadsheet application

Before creating a spreadsheet, you should consider which application to use. Sometimes you will be able to choose, other times you will have to use the software provided by your organisation.

Spreadsheet applications offer similar features:

- workbooks and sheets (pages in the document) are made up of columns and rows
- text, numbers and formulas are entered into cells
- formatting tools provide different options for presenting data
- files can be saved and opened in different file formats (CSV, XLS, XLSX, PDF)
- graphs and charts can be created to help visualise information.

Some spreadsheet programs can be downloaded or accessed free from the internet, others require you to pay a subscription fee. Many are available as off-the-shelf software packages.

Some of these applications can be shared and worked on by multiple users at once and accessed online. This is known as cloud computing.

The most commonly used spreadsheet software is Microsoft Excel, although some organisations prefer to use other programs.

The examples given in this learner guide are based on Excel 2016. Earlier versions will be similar in how they work, although there may be some differences in the appearance of the screens.

The following table outlines some of the key features of each.

Spreadsheet software	Key features
Microsoft Excel	▪ Calculation tools ▪ Tools for creating graphs and charts ▪ Tools to hide columns, rows and sheets ▪ Able to access external data sources ▪ Available as desktop software, online application and mobile app ▪ Password protection ▪ Able to communicate with other Microsoft Office programs, including Word and Access
Google Sheets	▪ Cloud-based, meaning multiple users are able to work in the document at once to collaborate on tasks ▪ Available as desktop software, online application and mobile app ▪ Keeps track of revision history ▪ Private data is stored on Google servers ▪ Uses action items to assign a person to a task ▪ Explore function allows users to search for information online

Spreadsheet software	Key features
Apache OpenOffice Calc	▪ Able to summarise and convert raw data into meaningful information ▪ Formulas can be created using both numbers and words ▪ Includes ready-made templates ▪ Allows users to forecast results, e.g. based on high or low sales results ▪ Allows data from multiple users to be integrated
Smartsheet	▪ Cloud-based, meaning multiple users are able to work in the document at once to collaborate on tasks ▪ Keeps track of timelines, calendars and task requirements ▪ Rows can be expanded to see more detailed notes ▪ Each row can have files and emails attached to it and a discussion board linked to it ▪ Contains a calendar view and alerts users of upcoming deadlines ▪ Can import data from other programs, including Microsoft Office and Google applications ▪ Available as desktop software or a mobile app

There are many organisational and reporting requirements, which will be outlined in organisational policies and procedures. This information may be used to determine the resources available to the company, including the specific software they can use. Be aware of the spreadsheet software used in your organisation, and ensure you follow organisational policies and procedures.

Practice Task 3

Part A

Question 1

If you need to collaborate on tasks with your colleagues and work in real time, which of the following software applications would you choose? Tick all that apply.

- ◯ Microsoft Excel
- ◯ Google sheets
- ◯ Apache OpenOffice Calc
- ◯ Smartsheet

Question 2

List four criteria you might use to decide which spreadsheet application to use.

Part B

Read the case study, then answer the questions that follow.

Case study

Josh works as an administrative assistant in a large organisation. One of his duties is to create spreadsheets to his manager's specifications. One day Josh is asked to create a spreadsheet containing the monthly sales figures of a selection of products the organisation sells. The spreadsheet has to calculate the total takings for each product and then work out a 10 per cent taxation charge for each amount calculated.

The spreadsheet must be formatted to organisational requirements and then saved to the server in the shared folder for sales. Josh's manager tells him to name the spreadsheet 'Product Totals'.

As well as entering the monthly sales figures in one column, Josh has to create two more columns of information.

Question 1

Describe the information to be held in the two new columns.

Question 2

How would you label the two new columns?

Question 3

How does Josh have to format the data?

Question 4

What is the name of the spreadsheet and where will it be stored?

Question 5

Why should Josh speak to his supervisor and confirm the delivery and timeline for the development of his spreadsheet?

Summary

- Ergonomics is about creating comfortable working conditions. Setting up a workstation to suit your physical requirements prevents undue stress and strain.
- Plan daily tasks, rest periods and exercise breaks to prevent repetitive work being done for long periods of time.
- Make sure your workstation and working conditions are safe and healthy so you can work comfortably and productively.
- Practise conservation techniques to try to minimise paper wastage and energy use.
- Conserving resources at work benefits the organisation by reducing costs, and helps to reduce the amount of greenhouse gas produced and the amount of waste going to landfill.
- Spreadsheets are made up of worksheets and workbooks. A worksheet is divided into columns and rows, and the intersection of a column and row is called a cell.
- You can change the appearance of your spreadsheet to suit your organisation's style and presentation requirements.
- Task requirements are important because they ensure all the documents produced are:
  - using the best application for the task
  - consistent in style and layout
  - presenting a consistent corporate image
  - scoped so a schedule can be designed to meet the timeline.
- You should always clarify the task requirements before producing your document to ensure you create a spreadsheet that aligns with its purpose and meets the needs of the target audience.

Learning Checkpoint 1

Prepare to use spreadsheets

Part A

1. Write your ideas on how you and your colleagues could improve work practices in relation to the following:

   a) Work health and safety

   b) Sustainability in the workplace

Part B

Read the case study, then answer the questions that follow.

Case study

Selda has recently started work as a marketing assistant with a large car sales business. She has been asked to create a draft summary report of all existing customers, the types of cars they have purchased and if they are repeat customers. The information is to come from the product sales database. This information will be used to select customers for the marketing campaign for the newly released family wagon. The report will be used by five members of the marketing team and seven sales managers. The marketing manager has asked to see a draft of the spreadsheet by the end of the week. The spreadsheet is to be stored on the server in the product folder 'PNwagonXXR007'.

Selda knows she needs to abide by organisational requirements for the design and layout.

1. Explain how Selda would identify the following requirements for the task:
   a) The purpose of the spreadsheet

   b) The audience for the spreadsheet

   c) The data source used for data entry

d) The information to be reported in the spreadsheet

e) The number of copies of the spreadsheet required

f) Where to store the spreadsheet

g) How to name the spreadsheet

2. What could Selda do to make sure she meets the deadline for production and delivery of the spreadsheet?

3. State four possible design requirements that Selda may need to consider when preparing the spreadsheet.

4. What should Selda do to confirm she is using the correct spreadsheet application for the task?

Topic 2 | Design and create spreadsheets

2A Entering data and formatting cells

2B Using and testing formulas and functions

2A Entering data and formatting cells

Excel treats data differently, depending on whether it is text, number or date/time.

The different types of spreadsheet data include:

- text, such as names, addresses and product information
- dates and times
- figures such as quantities, prices, sales figures and interest rates.

Dates and times

Dates can be entered in the following formats:

- Day/Month/Year = dd/mm/yyyy
- Month/Day/Year = mm/dd/yyyy

You need to be clear which format is being used.

Times use am and pm or a 24-hour format. For example, 6.00pm is the same as 18.00.

Excel tries to match the formatting with the way the information is typed in.

Always confirm the correct formats for your spreadsheet.

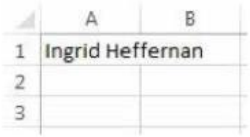
To automatically insert the current date into a cell, select the cell and press **Ctrl+;**

To insert the time, press **Ctrl+Shift+;**

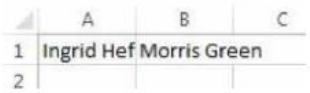
To automatically put the current date in a cell in the worksheet, you can use the TODAY function: =TODAY()

Text

When entering text, you will notice it is automatically aligned to the left of the cell. You will also notice that if there is no data in the adjacent cell, the text will overflow into it.

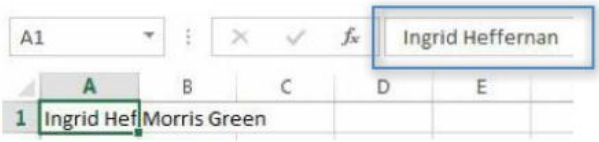


If there is data in the adjacent cell, the text that is entered will be truncated (chopped off).

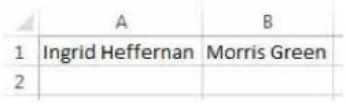


It may appear that the data is lost, but it is still contained in the cell.

A simple way to confirm this is to click in the relevant cell and view the cell's contents in the **Formula Bar**.



To ensure the printed and on-screen versions of the spreadsheet show the cell's full content, you need to adjust the width of the cell or wrap text within the cell.



Text is commonly used for entries of lists of information such as names, addresses and product details.

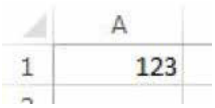
To wrap text in a cell, select the cells and use the **Wrap Text** tool 

, which is located in the **Home** tab.

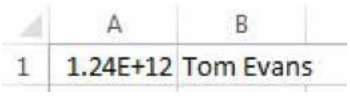
Wrap Text is commonly used for longer entries where you do not want to adjust the column width, but want to be able to read all of the information in the cell, such as address details.

Figures

When entering numbers, they will automatically be aligned to the right of the cell. In most cases, if the number is longer than the cell, the width of the cell will automatically adjust. There is a limit of 15 digits per cell.



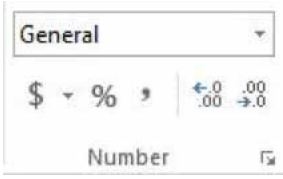
Sometimes numbers appear as shown below. This occurs when the number has too many digits for Excel to include in the cell, so it rounds it off and puts it in scientific notation.



When the cell is not wide enough for an entry, it is filled with a row of hashtags (#). This is a different situation to having too many digits.

To correct the problem, adjust the cell width.

You can also use the Number section in the **Home** tab to increase or decrease the number of decimal places shown. It is also possible to make number formatting choices such as currency.



Formatting spreadsheets

There are numerous techniques for improving the appearance of spreadsheets.

Formatting a spreadsheet effectively means to present the information in a way that is easy to understand. It should also be easy for people to enter data into the spreadsheet.

Before you start planning or designing a spreadsheet, you need to know:

- the purpose of the spreadsheet
- who will use the information
- the type of information that needs to go into the spreadsheet (the inputs)
- the information that the spreadsheet needs to produce (the outputs)
- how to manipulate and process the inputs to produce the outputs.

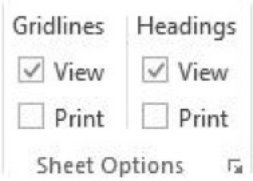
Here are some ways that spreadsheets can be formatted.

Formatting text

The options for formatting text are very similar to those available in word-processing programs. For example, you can highlight important text and numbers using bold or italic, underlining or shading. You can also adjust the column width or row height and adjust the alignment of the text – centre, right, left or angle. You can choose how numbers are presented, such as in currency format, as decimals with a particular number of decimal places or in date format.

Headings

Headings in a spreadsheet are the letters above the columns and the numbers beside the rows. These headings are useful because they give you an understanding of where you are located within the spreadsheet. Some people prefer to work without the headings displayed. Headings can be turned on and off by selecting the Page Layout tab and checking or unchecking the Headings View box.



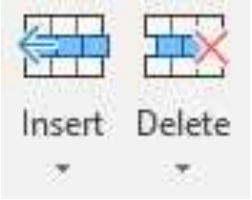
You can also choose whether to print headings.

Displaying or printing headings is useful when you are checking that information has been accurately entered, particularly when checking for errors with formulas or functions.

Headers and footers

Headers and footers are used to record common information in the margin of the report. The header is at the top of the page, while the footer is at the bottom. Headers and footers are automatically repeated on all pages of the spreadsheet. Headers and footers might include the company name and logo, name of the report, creation date and file reference information.

Adding and deleting columns and rows



To add a new column or row go to the **Home** tab and select **Insert**. Choose **Insert Sheet Columns** or **Insert Sheet Rows** from the drop-down menu. A new column or row will be inserted adjacent to the cell currently selected.

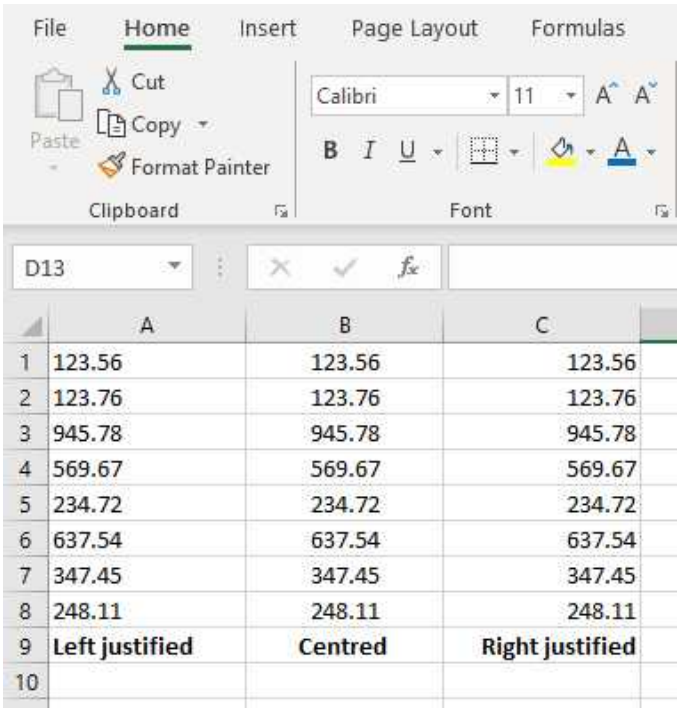
To delete a row or column, select **Delete**. Choose the appropriate option to delete (cell, row, column or sheet). If you make a mistake, you can click **Undo** or press **Ctrl+Z**.

Using design features to enhance readability and appearance

Styling and formatting spreadsheets can help to highlight key information and improve readability and appearance.

For example, using titles for columns and rows, bold, colour, shading and borders can draw the reader's attention to key information.

Be careful not to overuse styling, which can detract from the data and purpose of a spreadsheet to present clear information.



	A	B	C
1	123.56	123.56	123.56
2	123.76	123.76	123.76
3	945.78	945.78	945.78
4	569.67	569.67	569.67
5	234.72	234.72	234.72
6	637.54	637.54	637.54
7	347.45	347.45	347.45
8	248.11	248.11	248.11
9	**Left justified**	**Centred**	**Right justified**
10			

Practice Task 4

Consider and compare these two spreadsheet examples.

Good Fruit Company Weekly Stock Report @ 30 June				
	Stock at start of week	Stock out	Stock in	End stock
Apple	1433	234	123	1322
Apricot	2342	1234	1232	2340
Banana	2334	2111	2342	2565
Grape	3465	2341	1231	2355
Kiwi fruit	2231	1321	1235	2145
Orange	2342	1231	1231	2342
Peach	1311	1231	1324	1494
Pear	2521	2345	1444	1620

Good Fruit Company Weekly Stock Report @ 30 June				
	Stock at start of week v Stock out		Stock in	End stock
Apple	1433	234	123	1322
Apricot	2342	1234	1232	2340
Banana	2334	2111	2342	2565
Grape	3465	2341	1231	2355
Kiwi fruit	2231	1321	1235	2145
Orange	2342	1231	1231	2342
Peach	1311	1231	1324	1494
Pear	2521	2345	1444	1620

Question 1

What are the differences between the two examples?

Question 2

Which one is easier to read? Why?

Spreadsheet styles and layouts

The layout and presentation of the spreadsheet should project your organisation's image.

Many organisations use spreadsheet templates to help maintain a standard appearance. These may have predefined fonts, headers and footers, logos, formulas and functions. For example, if you are required to produce a monthly report of financial information, the only difference each month will be the financial data. The formulas and overall appearance will be the same. Using a template with formulas already developed can save time. You must first determine if the formulas are the same as what is required in your current task.

Templates and style sheets

A template allows you to create a structure for other spreadsheets using common data and formatting options.

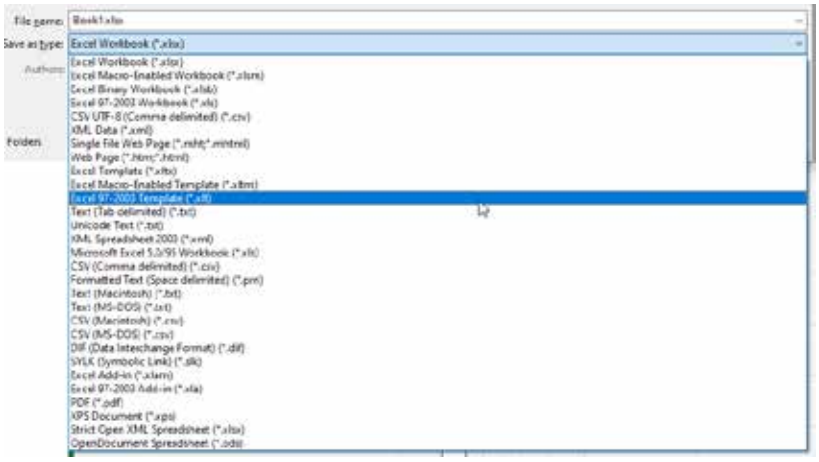
A style sheet is similar to a template and is used to apply predefined information, formatting, formulas and functions to a spreadsheet. Style sheets can be protected to ensure that users cannot change anything apart from the information they are required to enter.

Style sheets and automatic functions are useful tools for ensuring that spreadsheets produced by different people in an organisation are consistent in their appearance. This is especially important if your spreadsheet will appear with others in the same document or presentation.

You can create a template from a blank workbook. Templates can also be accessed by selecting **New** from the **File** tab.

To do this, create the spreadsheet component or structure you want to use, then select the **File** tab and choose **Save As**. Give the template an appropriate name, and use the **Save as type** drop-down menu to select 'Excel Template'.

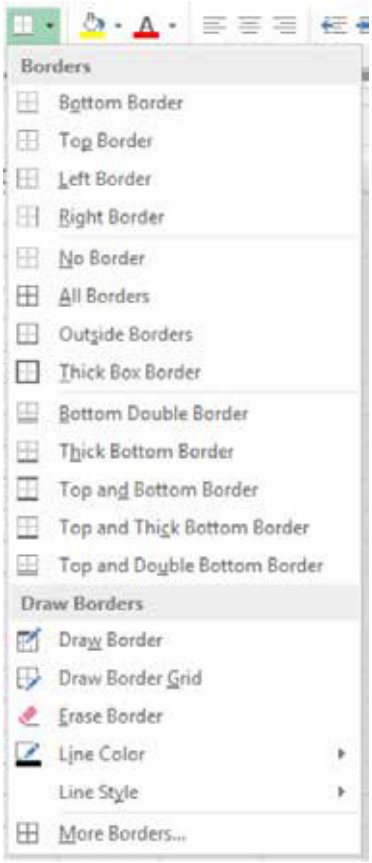
If you are working in Excel and the template is to be used by people who have an older version of Excel, you may need to choose the option 'Excel 97-2003 Template'.



Some of the features you can incorporate into your style sheets are:

- borders
- page numbers
- alignment
- typeface styles and point size.

Borders



Borders are used to keep certain information separate from other parts of the spreadsheet or to highlight key information.

To add a border, select the area where you want the border to apply. Select the **Home** tab and use the **Borders** drop-down menu to select the appropriate border. For more specific styling options for border, select **More Borders**, which allows you to select a style and choose which parts of the cell to apply it to.

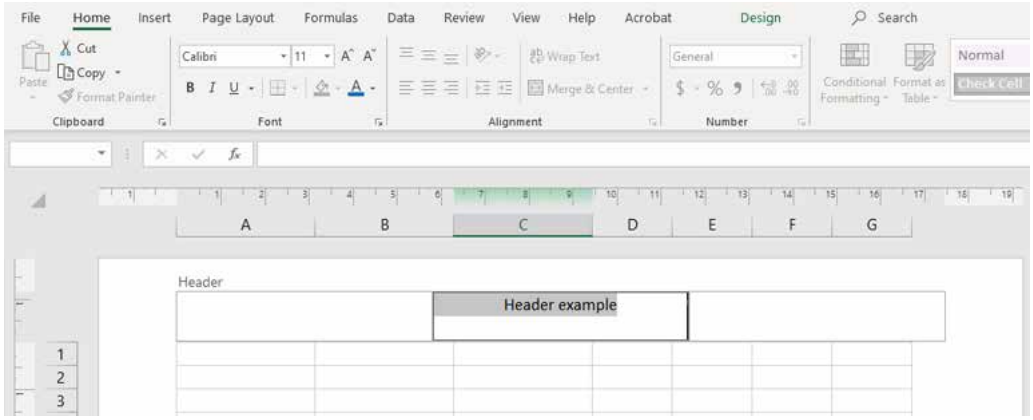
Headers, footers and page numbers

Headers and footers are used to incorporate information into the margin of a spreadsheet.

Examples include current date and time, file reference, and page numbers.

To insert a header or footer click on the **Insert** tab and select **Header & Footer**. You will now be able to enter the required information or use the tool buttons to design your header and footer. After entering a header or footer, the onscreen view will change to **Page Layout**. To return to the normal view, select the **View** tab and click **Normal**.

Page numbering is commonly used in either the header or footer of the spreadsheet to show the total number of pages and the current page you are viewing in the printed version. To insert page numbers, select Header & Footer from the **Insert** tab. The **Design** tab will appear, then you can select the appropriate page numbering tool as shown below.



If you are showing both current page number and total number of pages, you need to manually type in 'of' as this is not automated.

Alignment of text and values

Text and values align differently within the cell by default. Text aligns to the left, values to the right.

To adjust the horizontal alignment of data in a cell, select the cell and choose the appropriate alignment tool from the **Home** tab.

Horizontal alignment options include left, centred and right. Data can also be aligned to the top, centre or bottom of the cell. In addition, text can be oriented to be vertical or on an angle. This can be helpful to fit lengthy headings on the side of tables.

Another common tool used to align cells is **Merge & Center**. This is commonly used to align a heading across the width of data in the spreadsheet. When using **Merge & Center**, the data to be merged across the cells must be in the first cell selected.

Look at the following example.

	A	B	C	D	E	F	G
1	Henry Lewis Consulting & Co						
2	Sales results						
3							
4		Sales Consultant					
5	Month	Hannah	Joe	Fredrick	Simon	Carolyn	Nim
6	January	12334	12324	5334	45434	2421	1232
7	February	34543	23466	5456	12334	1243	1245

In this example, the headings 'Henry Lewis Consulting & Co' and 'Sales results' have been merged and centred across the columns A:G. To perform this action, each row is dealt with separately. First, the data from cells A1:G1 are selected and then the **Merge & Center** tool on the **Home** tab is pressed. Next, the data from cells A2:G2 is selected, and then the **Merge & Center** tool is clicked. This provides the data with a heading.

Extra space can also be added to the spreadsheet by adjusting the column width and row height. This can be done by positioning the cursor between either the letters of the columns to be widened, or the numbers of the rows to be made taller. A double-headed arrow will appear that will enable you to click and drag to adjust the column width or row height.

Typeface styles

To adjust the font, select the cell to be changed and make your selection using the **Font** tool and **Font Size** tool.

Styles can also be used to format cells. Styles apply formatting such as colour, borders, font type and size to the cell.

To do this, select the cells to be formatted by highlighting them. To format using styles, from the **Home** tab, select **Cell Styles** and choose an option.

Default settings are the original settings of the spreadsheet, referred to in Excel as the Normal style. This style has preset formatting such as font type=Arial, font size=12. There is no other formatting applied to the Normal style. To adjust data to the Normal style, select cells to be adjusted, and from the **Home** tab, then select **Normal** Normal in the Styles section.

Table headings

Data can be converted to a table format with headings, which can be useful for quickly sorting the data.

Tables make the information easy to work with, as formatting is automatically applied and it is possible to have the titles of the table automatically become headings. This can be useful for sorting and reviewing data. The following example demonstrates how data has been converted to a table format with headings.

MAXIMILLIAN FURNITURE SUPPLIES		
PRODUCT LIST FORECAST		
Sydney	Melbourne	Adelaide
Oak Table	Oak Bench	Country Table
King Chair	Country Table	King Chair
Oak Bench	Oak Sideboard	Country Chair

The table headings have arrows that enable you to quickly sort the data.

To convert data to a table, select the cells by clicking and dragging to highlight them, then select **Table** from the **Insert** tab.

Cell styles

In Microsoft Excel, there is an option to apply cell styles to the spreadsheet. These are predefined styles available for you to use. Styles relate to font type, font formatting, number formatting, borders and shading. Simply select the cells that require the style applied, choosing the **Home** tab, and selecting the **Cell Styles** button. From here you can choose to apply a predefined style or create a new style for future use.

You might choose to use different predefined styles for row and column titles, the data contained in the spreadsheet and summary information.

The following example shows how style choices can be used to improve presentation. The spreadsheet titles are formatted, merged and centred across the length of the data. Titles are formatted appropriately and end stock figures are shaded to highlight the end result.

Manny's Hardware Shop

June Stock Report

	Stock at start of month	Stock out	Stock in	End stock
Hammer	1433	234	123	1322
Axe	2342	1234	1232	2340
Spanner	2334	2111	2342	2565
Angle-grinder	3465	2341	1231	2355
Screw-driver	2231	1321	1235	2145
Drill	2342	1231	1231	2342
Nail-gun	1311	1231	1324	1494
Chisel	2521	2345	1444	1620

Practice Task 5

Question 1

Create the following spreadsheet and apply borders as shown – thin inside borders for key information, and a thick outline border for the entire report. Save the file to an appropriate file location and name it 'August Car Sales'.

Beautie's Used Cars						
Car sales - August						
	Car Make & Model					
Sales Person	Ford Falcon	Mazda 6	Holden Astra	Honda Accord	Nissan Patrol	Kia Rio
Gilbert	45	11	63	25	5	6
Harry	11	34	11	6	52	5
Ingrid	12	24	1	62	11	21
Jon	32	65	11	2	1	4
Mark	11	6	34	5	52	41
Selda	6	52	52	11	5	4
Vishna	2	5	5	11	52	52

- Adjust the column width and row height to give more space. Adjust the alignment within cells to improve the presentation of the data. Start by centring vertically and horizontally.
- Format text by using different font types and sizes and bold or italics.
- Use colour and shading to format cells.

Question 2

Use the information in the table below to create a spreadsheet that meets these requirements:

- Font: Arial 14, bold and italic
- Titles: shade background in yellow
- Border: thick outline

Save the file to an appropriate location and name it 'Fashion Excess – stock on hand'.

Stock item	Quantity on hand	Cost per item	Retail price per item
Knickerbockers	188	$45	$86
Flower power pants	191	$55	$92
Flare pants	192	$51	$98
Skirts	101	$18	$67
A-line skirts	76	$23	$87
Hot pants	177	$34	$76

Question 3

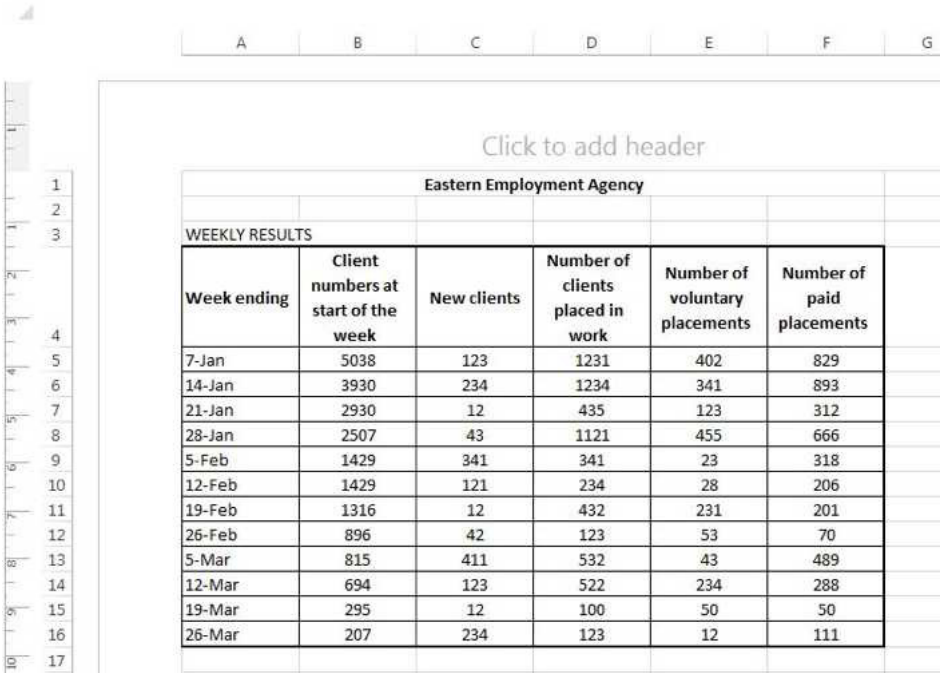
Create the following spreadsheet and convert it to a table with headings. Practise using the heading arrows to sort and review the entries.

Favourite Animals			
Mary	Jenny	Howard	Isla
Cat	Giraffe	Hamster	Lion
Dog	Dolphin	Rabbit	Zebra
Frog	Dog	Fish	Hippo

Page Layout view

The Page Layout view is used to quickly and easily make adjustments to the worksheet.

Use this view to adjust the layout and format data as appropriate. It is possible in this view to change the orientation of pages, adjust headers and footers, and adjust margins, column width and row height. This view includes row and column headers and has a ruler for measurement. The Page Layout view appears on screen as follows:



Week ending	Client numbers at start of the week	New clients	Number of clients placed in work	Number of voluntary placements	Number of paid placements
7-Jan	5038	123	1231	402	829
14-Jan	3930	234	1234	341	893
21-Jan	2930	12	435	123	312
28-Jan	2507	43	1121	455	666
5-Feb	1429	341	341	23	318
12-Feb	1429	121	234	28	206
19-Feb	1316	12	432	231	201
26-Feb	896	42	123	53	70
5-Mar	815	411	532	43	489
12-Mar	694	123	522	234	288
19-Mar	295	12	100	50	50
26-Mar	207	234	123	12	111

To select this option, go to the **View** tab and select **Page Layout**. Adjust margins by positioning the cursor on the margin line in the ruler so it is a double arrow, then click and drag. The same process can be followed to adjust row height and column width. To adjust the header or footer, simply click into the entry and make appropriate changes. Orientation can be changed from portrait to landscape, and vice versa, by selecting the **Page Layou**t tab and clicking on **Orientation**.

Page alignment

The page alignment can be adjusted to ensure that content is evenly distributed on the page.

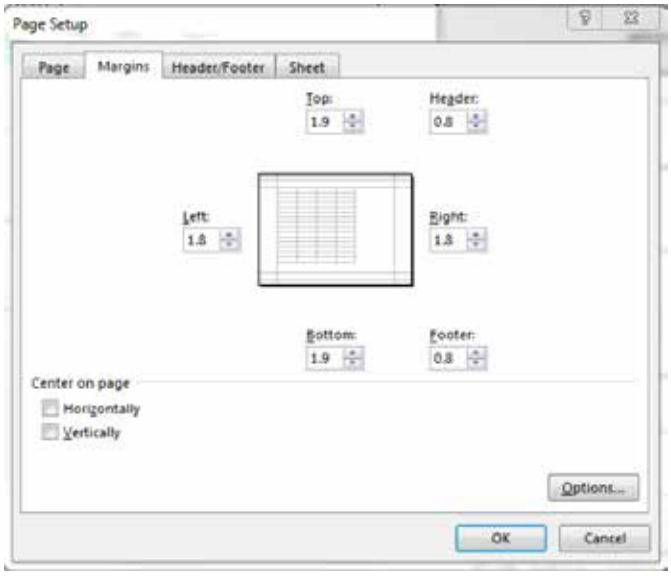
When creating spreadsheets, it is best practice to begin your spreadsheet at cell A1. What occurs, however, is that when you print the spreadsheet, the information begins at the upper left of the page. This is reasonable for presentation of a longer report but if it is a shorter report, the spreadsheet will seem to be crammed into one corner. Look at the following example of page alignment.

	A	B	C	D	E	F	G
1		End of year STUDENT RESULTS					
2		Results (each assess = 2.5% of overall result)					
3	Student name	Assess 1	Assess 2	Assess 3	Assess 4	Total	
4	Mary Jones	23	21	19	21	84	
5	Jon Youga	12	14	16	15	57	
6	Keon Rasimi	24	18	20	21	83	
7					MINIMUM RESULT	57	
8					MAXIMUM RESULT	84	
9					AVERAGE RESULT	74.7	
10							
11							

To adjust the alignment so the information is centred in the page, follow these steps:

From the **File** tab, select **Print**, then select **Page Setup** at the bottom of the Settings panel. Select the **Margins** tab. Under Center on Page tick both **Horizontally** and **Vertically**.

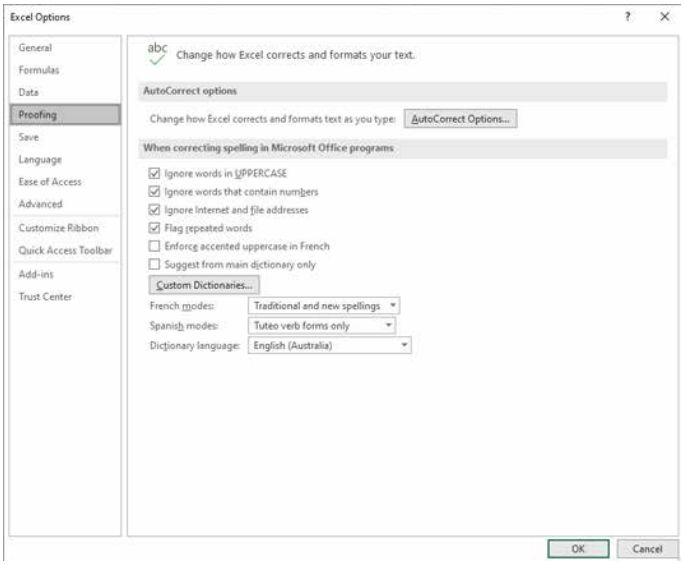
The **Page Setup** dialog box also provides a preview of your changes.



Proofing and AutoCorrect

AutoCorrect automatically corrects common typing errors; for instance, if you were typing the word 'what', and accidently typed in 'whta', Excel will correct the error to 'what'. It is a handy feature, but only works for common words.

The Proofing feature can be customised by selecting the **File** tab, choosing **Options** and selecting **Proofing**. Here you can select options such as **Ignore words in uppercase** and **Ignore words that contain numbers**. You can also click **AutoCorrect Options** and type in commonly misspelled words and what they should be replaced with.



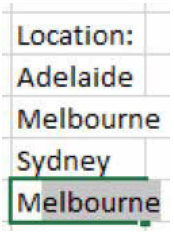
To check errors in labels, select **Spelling** under the **Review** tab. This identifies misspelt words. It cannot assist with product names, customers' names or addresses. Manually check your spelling and crosscheck it with the original data source. For example, you may have been given a printout of all customers' names to be entered. Once you have entered the customers' names, check them for accuracy against the printout.

You should check all information, including:

- name and address details
- spelling
- product information and pricing
- dates
- reference details; for example, catalogues and previous correspondence.

AutoText

Excel recognises that you may have entered the same information previously. For instance, you may be typing in locations of retail outlets, such as Sydney, Melbourne and Adelaide. Once you have typed in these entries, when you type the data for the next entry, Excel will automatically provide an option for you to select from rather than retyping. Look at the example below:



In this example, as soon as 'M' is typed, it automatically completes the text to say 'Melbourne'. It is then only necessary for you to press enter to accept it. If it is another entry that you are completing – such as Malvern – just continue typing.

Practice Task 6

Here is a spreadsheet and the original information used to create it.

	A	B	C	D
1			Custoemr Accounints	
2				
3	Customers	Balance	10% Interest	New Balance
4	Smithe	$5,500.00	$550.00	$6,050.00
5	Cartter	$4,000.00	$400.00	$4,400.00
6	Andrew	$3,450.00	$345.00	$3,450.00
7	Philips	$300.00	$30.00	$300.00
8	Elliott	$2,500.00	$250.00	$2,750.00
9	Frank	$500.00	$50.00	$550.00
10	Luiee	$34.00	$3.40	$37.40

Customer documentation

Customers	Balance
Smith	55.00
Carter	4,000.00
Andrews	3,455.00
Phillips	3,000.00
Elliot	2,500.00
Franks	5,000.00
Louie	34.00

Question 1

How many errors are in the spreadsheet?

Question 2

What are the consequences of numeric values being entered incorrectly?

Question 3

What should customer Smith's balance be?

Question 4

Create the worksheet with accurate information. Save it to an appropriate location, and call it 'Customer Accounts'.

Importing and exporting data

You may want to bring data into your spreadsheet from another application such as Microsoft Access; this is called importing data.

For example, if the information you require is stored in a customer database, you may need to import customers' contact details and other information.

The following tools, located in the **Data** tab under the Get & Transform Data section, are used to import data.

Exporting data to another application from Excel can be done by copying and pasting the required information. You might need to do this if the data needs to be analysed or presented in a different way.

Keyboard shortcuts

Keyboard shortcut commands are useful for speeding up data entry and formatting processes.

It is possible to create macros to make your own keyboard shortcut commands for common actions, such as inserting a company logo.

Common keyboard shortcut commands include:

- Ctrl+B to make selected cells bold
- Ctrl+I to make selected cells italic
- Ctrl+C to copy selected cells
- Ctrl+X to cut selected cells
- Ctrl+V to paste selected cells
- Ctrl+F to activate the Find function

Many other keyboard shortcuts are available. These are explained in Excel's help function.

Practice Task 7

Open the spreadsheet called Customer Accounts you created in Practice Task 6.

- Go to Print to see how the spreadsheet will look when printed.
- Adjust the page alignment so it is centred on the page both vertically and horizontally.
- Check with Print Preview.
- Practise inserting and deleting columns and rows. Do not save the changes you make. You can also practise changing cell widths.
- Use the Help function to investigate keyboard shortcut commands available in Excel. Search for Excel shortcut and function keys.
- Practise using some of the shortcut keys to change the format of the spreadsheet.

2B Using and testing formulas and functions

Formulas and functions are at the heart of a spreadsheet. They take your data and manipulate it in various ways to give the outputs needed.

Functions are a type of formula that performs more complex calculations. Perhaps the simplest of these to understand is the SUM function, which is a complex form of adding values from a range of cells together.

Excel uses formulas and functions (built-in formulas) to manipulate numbers so you can analyse them however you need to.

Some typical ways a spreadsheet can make analysis of data quick and easy are by:

- calculating the average of numbers
- calculating the totals of a list of numbers
- working out percentages
- calculating simple and compound interest using formulas.

You can enter a formula into any cell. To do this you must start with an = sign so the spreadsheet knows that it is a formula.

The most basic operations a formula can do are:

- add using the + symbol
- subtract using the – symbol
- multiply using the * symbol
- divide using the / symbol

If you want to add two numbers enter the first number into a cell (such as A1), then enter the second number into another cell (such as A2). Type a formula into another cell. For this example, type =A1+A2 into cell A3. When you press **Enter** on the keyboard, the answer to the calculation will be displayed in cell A3.

If new numbers are typed in A1 and A2, cell A3 will automatically display the new answer when **Enter** or an arrow key is pressed. This means you do not have to type the formula all over again; it stays there, processes the data from A1 and A2, and records the result in A3.

Functions

A function is a formula that is built into a spreadsheet.

Functions can save a lot of effort by doing quite complex calculations in one cell. Excel provides functions to do a variety of common calculations, such as SUM or AVERAGE. For example, =SUM(B5:B17) adds all the numbers in the range of cells from B5 to B17. Functions can be used in Excel to perform a variety of mathematical, statistical and financial calculations to help you to analyse information. Some common functions used in Excel are shown in the following table.

=SUM(range)	Adds the numbers in the cells that are within the range specified in the brackets Example: Calculates the total sales figures for a given period
=MAX(range)	Finds the highest value from cells that are within the range specified in the brackets Example: Shows the highest student result from the group
=MIN(range)	Finds the lowest value from cells that are within the range specified in the brackets Example: Shows the lowest student result from the group
=AVERAGE(range)	Finds the average of numbers in the cells that are within the range specified in the brackets Example: Shows the average result of all students
=COUNT(range)	Counts the number of items in the range Example: Counts the number of results entered for the class

Automatic functions

If you have created a formula in one cell, and you want to repeat it in additional cells, you can either copy it or use automatic functions.

AutoFill is used to repeat sequenced information that aligns with the selected cell. Use the AutoFill handle  to repeat the sequence of formulas and functions.

AutoSum enables you to add values automatically using the SUM function. Select a range of values that you want to calculate and select **AutoSum**, which can be accessed from the **Home** tab.

Checking and amending data

If the information contained in the spreadsheet is not accurate it will cause problems for others and reflect poorly on the company you represent. For example, you might mistype the figures in a summary of house sale prices. Taking the time to check information and making sure it is correct helps to save time, improve efficiency and increase customer and organisational satisfaction.

Remember, if your input is wrong, your output will also be wrong.

Producing spreadsheets requires you to follow instructions. Instructions may be given by your manager or supervisor, the person requesting the spreadsheet, past spreadsheets or instruction manuals. Instructions may relate to the spreadsheet's content or its format and layout.

For example, you may be asked to produce a sales report summarising weekly figures, and provide a comparison of actual results with target results. You may be required to identify sales personnel and specify their performance in terms of actual and target performance. These instructions provide guidance on what is required for the report and how it is to be produced.

If instructions are not followed, it may delay the final production of the report, or reduce the usefulness, meaning and credibility of the information. If you need to clarify instructions, or have your own ideas about how the spreadsheet could be improved, speak to your manager or the person requiring the information.

Testing formulas and functions

In complex spreadsheets, there might be several possible answers, depending on the order in which calculations are carried out.

You should input test data and use a calculator to work out what answers your spreadsheet should give. For instance, if your formula is meant to give the average of five numbers in cells B1 to B5, then make up some numbers and put them in the spreadsheet. Add up the same numbers on a calculator, then divide by five to see if you have the same answer produced by the formula. If not, you have probably made one of the following mistakes:

- typing in the wrong cell reference in a formula (such as B11 instead of B1)
- making a mistake when typing the formula (such as typing + instead of *)
- using the wrong formula.

It is important to always check your spreadsheet for accuracy. This may include double-checking with stakeholders, like your colleagues or manager, to make sure the data you have entered is correct. As well as checking the values you have entered, you should also ensure that any labels are spelt correctly and that you have formatted all data to suit organisational requirements.

You may be able to give the information you produce to a colleague or supervisor to check in draft form before you complete the final version.

Use the **Show Formula**s tool 

in the **Formulas** tab to review formula entries.

Check the spreadsheet to ensure:

- ❑ the accuracy of data entered
- ❑ formulas are working correctly
- ❑ all instructions have been followed
- ❑ the design and layout are consistent.

Practice Task 8

Read the case study, then answer the questions that follow.

Case study

Helen has recently taken up a position as an administrative officer with a government department. Her manager asks her to compile a spreadsheet report analysing the number of people who have travelled overseas in the past year, as well as information on countries visited. She has also been asked to ensure that she follows standard guidelines for producing the report, such as use of corporate colours, font type and size and the company logo. The report from the spreadsheet is to be distributed to media outlets. A graphical representation showing the top 10 locations for travel is also required.

Question 1

Who is the audience for the spreadsheet?

Question 2

What is the purpose of the spreadsheet?

Question 3

What are the information requirements?

Question 4

What are the elements of spreadsheet design that Helen needs to consider?

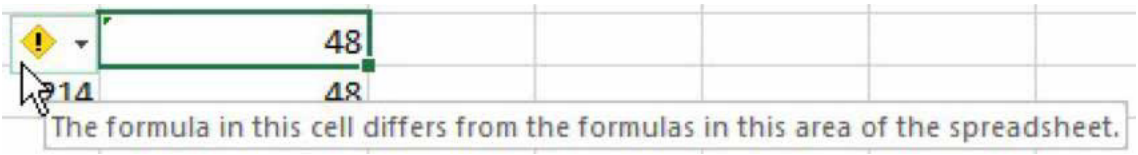
Error alerts

Excel has many features to help you identify errors, such as an inconsistency in a formula.

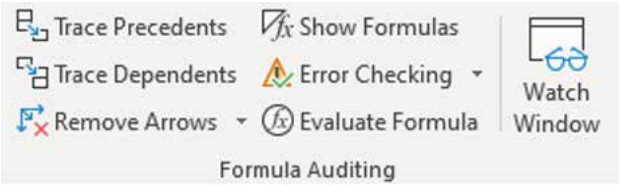
In the following example, a small arrow in cell F6 indicates there is an error in the formula.

	A	B	C	D	E	F
1	Monthly stock control					
2						
3	Product code	Product description	Quantity at start of month	Quantity in	Quantity out	Balance at end of month
4	PL123	Recycled White	209	50	65	194
5	PL344	Blue A4 paper	54	250	244	60
6	PL232	Green A4 paper	355	0	67	48
7	PL987	Yellow A4 paper	12	250	214	48

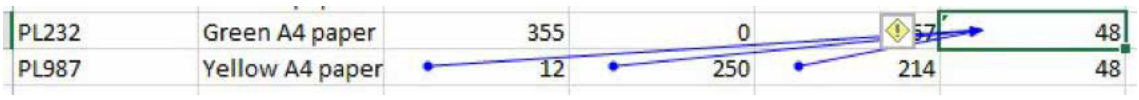
If you select the cell with the alert, a help bubble will appear that explains the error that Excel has identified.



If you are unsure what the error is, you can also use **Formula Auditing** tools in the **Formulas** tab to investigate errors and determine what action needs to be taken to correct them.



Another useful feature is the **Trace Precedents** tool, which shows a diagram of where the data in the calculations comes from. To use this tool, select the cell that contains the error and then select **Trace Precedents** in the **Formulas** tab. The spreadsheet will show preceding connections, as in the following example.



It may also be necessary to consult with colleagues, your manager or the person who has requested the spreadsheet to confirm the results of the formula. If the results do not appear to be correct, take appropriate measures to check the entries. This includes checking calculations as well as source data. If you are still in doubt, seek advice from your manager or colleagues.

If you find there is no error in the formula indicated in the warning message, you can choose **Ignore**. This will remove the green error flag from the spreadsheet.

Absolute and relative cell addresses

Relative references change when you copy and move cells, whereas absolute references do not.

The cells in an Excel spreadsheet are all relative to each other. This means that if you place a value in one cell and then move it, the values will alter as the cell collects information from other cells around it. For example, the totals you calculated for each of your columns may need to be moved to another part of the spreadsheet. However, if you move the totals values to another location, the values would alter as the cells are no longer reading information from the cells immediately above them. This kind of reference is called a relative reference.

This can be very important if you shift a formula, because you may need to decide if the cell references in it should stay the same (absolute references) or stay in the same relative position (for instance, always one cell above the formula).

To make the values remain the same wherever you place them in the spreadsheet, you need to make the reference absolute. To make a cell reference absolute, use $ in the reference, such as in the following examples:

=C5+B5 is a relative reference.
=$C$5+$B$5 is an absolute reference.

Practice Task 9

In this exercise you are going to create a formula to calculate the values for the Profit column.

Question 1

Create a spreadsheet named 'Warehouse Profit' using the data below.

	A	B	C	D	E	F
1	***Harry Mulligan's Warehouse***					
2						
3	**Month**	**Income**	**Expenses**	**Profit**	**Tax**	**End Profit**
4	January	5221	523			
5	February	2342	231			
6	March	2523	1123			
7	April	2341	345			
8	May	3452	653			
9	June	2346	452			
10	**Totals**					

Question 2

Create a formula to calculate the profit. Ensure you use the cell references and not the actual numbers in the cells. Select cell D4 and enter the formula =B4–C4. Press the **Enter** key to perform the calculation.

Month	Income	Expenses	Profit
January	5221	523	=B4-C4

Once you have a calculation, use AutoFill to repeat the calculation in the remainder of the column. Your worksheet should now look like the following example.

	A	B	C	D	E	F
1	***Harry Mulligan's Warehouse***					
2						
3	**Month**	**Income**	**Expenses**	**Profit**	**Tax**	**End Profit**
4	January	5221	523	4698		
5	February	2342	231	2111		
6	March	2523	1123	1400		
7	April	2341	345	1996		
8	May	3452	653	2799		
9	June	2346	452	1894		
10	**Totals**					

Question 3

The tax values need to be calculated as 10 per cent of the profit. In cell E4, enter the formula =10%*D4 (this will give you 10 per cent of the value in D4).

Press the **Enter** key to perform the calculation.

Month	Income	Expenses	Profit	Tax	End Profit
January	5221	523	4698	=10%*D4	

Use AutoFill for the remainder of the column.

Question 4

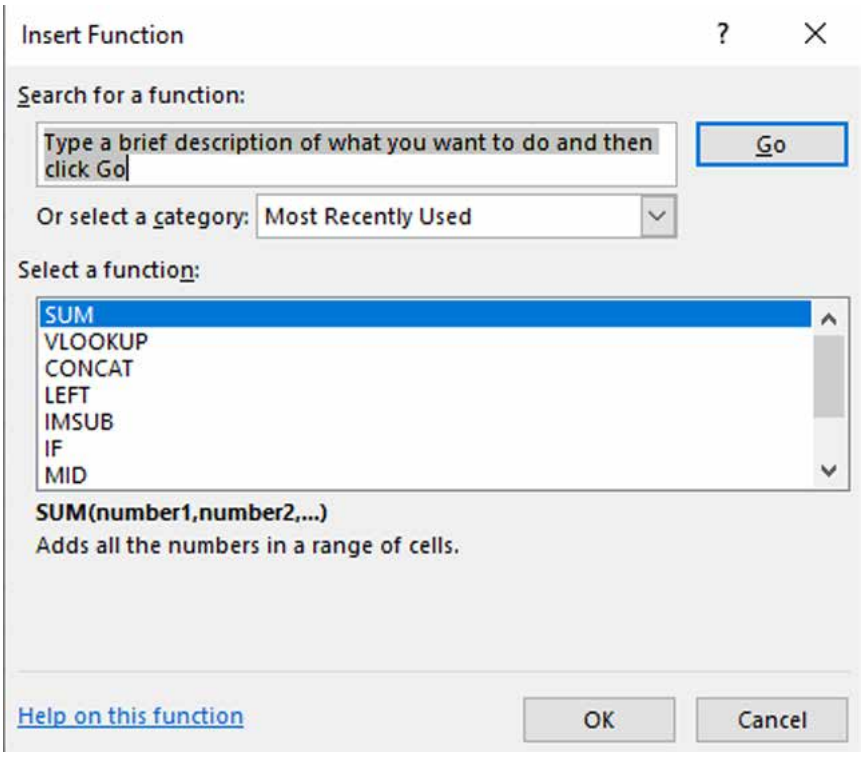
Select cell F4 and enter the following formula =D4–E4. This calculation subtracts the Tax from the Profit, giving you an End Profit value. Press the Enter key to perform the calculation.

Month	Income	Expenses	Profit	Tax	End Profit
January	5221	523	4698	469.8	=D4-E4

Use AutoFill for the remainder of the column.

Question 5

Open your Warehouse Profit spreadsheet. Select cell B10. From the Formulas tab select Insert Function. You will see the following dialog box. Select SUM and click OK.



Question 6

As you have selected a cell at the end of a column full of numeric values, the SUM function is going to add all of these values together. Number 1 shows the formula the SUM function will use to make the calculation and the formula result is displayed at the bottom of the dialog box. Click OK. Cell B10 should now hold the calculation of all Income values added together.

Question 7

Repeat step 6 for the following cells: C10, D10, E10 and F10. Your worksheet should now look similar to the following example.

Harry Mulligan's Warehouse					
Month	**Income**	**Expenses**	**Profit**	**Tax**	**End Profit**
January	5221	523	4698	470	4228
February	2342	231	2111	211	1900
March	2523	1123	1400	140	1260
April	2341	345	1996	200	1796
May	3452	653	2799	280	2519
June	2346	452	1894	189	1705
Totals	18225	3327	14898	1490	13408

Question 8

Describe how you might test formulae and spreadsheet data to ensure your calculations are correct.

Practice Task 10

Enter the following data into a new spreadsheet.

	A	B	C	D
1	January - sales commissions			
2	Name	Total sales	% commission	January commission
3	Mary	$34,050	10%	
4	Henry	$29,881	15%	
5	Jay	$9,837	10%	
6	Esther	$19,884	12%	
7	Ali	$12,098	12%	

Question 1

To calculate the January commission, enter the formula =**B3*C3** in cell D3. Press **Enter** then use **AutoFill** to complete the column. Save the file as 'January sales commissions'.

Question 2

Label row 8 'Highest commission'. Select **AutoSum,** then **MAX** to calculate the highest commission for January. Ensure the range is set to (D3:D7)

Question 3

Label row 9 'Lowest commission'. Select **AutoSum**, then **MIN** to calculate the lowest commission. Ensure the range is set to (D3:D7)

Question 4

Label row 10 'Average commission'. Select **AutoSum**, then **AVERAGE** to calculate the average commission. Ensure the range is set to (D3:D7)

Question 5

Label row 11 'Total commissions'. Under the **Formulas** tab, select **AutoSum**, then **Sum** to calculate the total of the January commissions. Ensure the range is set to (D3:D7)

Question 6

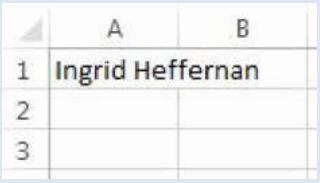
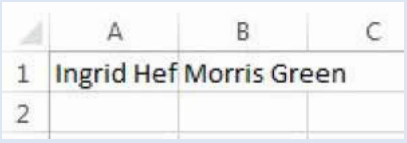
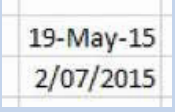
Label row 13 'Number of sales people.' Under the **Formulas** tab, select **AutoSum**, then **Count** to calculate the number of sales people. Ensure the range is set to (A3:A7).

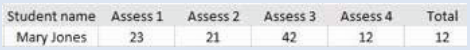
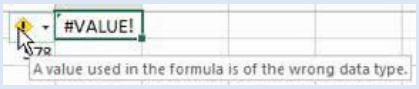
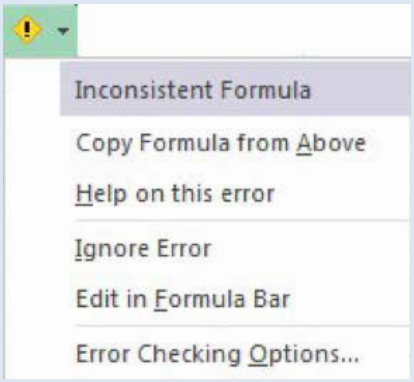
Common problems when producing spreadsheets

It is inevitable that problems will arise when designing and producing spreadsheets.

Fortunately, there are many resources to help you overcome them, including referring to the Excel help function, training manuals and instruction guides. You may also be able to obtain assistance from colleagues or managers. If the problem is still unresolved, you may need to seek specialist help from your organisation's IT staff.

The following table shows common problems that occur when producing spreadsheets.

Problem/issue	Example	Action to take to correct the problem
Data entry is incorrect	▪ Misspelt names ▪ Incorrect figures ▪ Missing data or information	▪ Check spelling ▪ Proofread and check spreadsheet data
Text overflows or truncates	▪ Text entry flows into adjacent cell  ▪ If an adjacent cell contains data, text appears to truncate 	▪ Adjust column width ▪ Apply **Text Wrap** to the cell
Text not in full view		▪ Adjust row height ▪ Align content to the top of the cell
Numerical entry has too many digits		▪ Use fewer digits in the cell (if possible) – there is a limit of 15 digits per cell
Date formatting not consistent		▪ Adjust date formatting to the same format throughout
Number displayed as ###		▪ Adjust column width

Problem/issue	Example	Action to take to correct the problem
Cell alignment not consistent		▪ Adjust alignment of cells – both vertical and horizontal
Incorrect calculation result		▪ Check formula or function inputs ▪ Check data entry
Result of calculation appears with a #VALUE! alert		▪ Check formula or function input – this alert appears when a cell containing letters is included in a calculation
Green error alert		▪ Click on the green alert – a message will appear to explain the possible problem  ▪ Investigate error and make necessary corrections ▪ Use the warning menu to make appropriate choices 
Investigation into possible errors in results needed		▪ Use the Formula Auditing tools to track the formula – this can only be used if the formula has been input using cell references such as =A1+A2 

Help resources

Working with software applications can be quite complex and there may be times when you need to seek assistance.

Excel has a built-in help function, but if you cannot find the answer there you may need to seek the advice of an experienced Excel user such as a supervisor, colleague or IT support person.

Here are some other avenues you can access when you need help.

Manuals and training

Your organisation may have task- or role-specific manuals to help you produce spreadsheets. These provide guidance and assistance on the types of information a spreadsheet should contain or may specify the instructions to be followed for formatting and designing spreadsheets.

Excel software comes with user manuals that describe the software features and provide step-by-step instructions for carrying out different functions. You can find manuals in paper-based and online formats.

You may have been to a training course to learn a particular computer function. Training courses usually provide a comprehensive set of instructions or notes that are worth keeping for future reference.

Online help

You can find information about Microsoft Office applications on many different websites. These often contain frequently asked questions and solutions to common problems. You can also download updates, tools and any fixes Microsoft has developed for software problems. You may find the following websites useful:

- aspirelr.link/microsoft-support
- aspirelr.link/microsoft-office

Tool buttons

Each time you move your mouse pointer over a tool button and leave it there for a moment, it will display a tip that tells you what the button is used for. For instance, from the Home tab, move your mouse pointer over the Font tools. You will notice the help tip for the Font Colour tool button.

Practice Task 11

Read the case study, then answer the questions that follow.

Case study

Chinh works as an administrative assistant in a small manufacturing organisation. One of his tasks is to create Excel spreadsheets for his supervisor.

When creating spreadsheets, Chinh often needs to use Excel help to answer questions about software functionality. If he is unsure of a screen icon's function, he presses Shift+F1 and points to the icon with his mouse.

Recently, Chinh attended a two-day Excel training course at a local community centre. He keeps the training booklet they handed out on his bookshelf. It has a handy index at the back for quick solutions to problems. He has also photocopied pages from various manuals he found around the office and has placed them in a help folder on his desk.

Sometimes Chinh experiences software function problems that cannot be easily solved. Chinh then uses Microsoft's support website to find a solution, or he refers to the paper-based material he has gathered.

Question 1

If Chinh experiences software functionality problems, where does he go for help?

Question 2

Describe how Chinh uses paper-based manuals for help.

Question 3

If you experience a software problem when creating a spreadsheet, describe the steps you should take to solve the problem.

Summary

- Spreadsheets are used to analyse data and present the results in a clear and comprehensive way.
- When designing a spreadsheet, you need to know its purpose, who will use it and the inputs, processing and outputs required.
- The design of the spreadsheet should meet the needs of the person requesting it, as well as organisational expectations and standards.
- You can use formatting, charts and other graphics to improve the readability and overall presentation of the spreadsheet.
- Formulas and functions simplify the processing of data.
- Automatic features can be used to save time and reduce errors.
- Spreadsheets should be consistent in design and layout.
- Spreadsheet design and layout must adhere to organisational and task requirements.
- Text, numerals, date and time, formulas and functions can be entered into a spreadsheet.
- It is important to proofread and check spreadsheets to ensure accuracy of the end product.
- Formatting options provide a means to improve the readability and design of spreadsheets.
- Formulas and functions allow repetitive calculations to be done automatically. All the user has to do is change the data.
- Excel has a number of ways to identify and correct errors in a worksheet.
- There are many ways you can get help, including referring to manuals, help desks and online support.

Learning Checkpoint 2
Design and create spreadsheets

Part A

Read the case study, then complete the tasks that follow.

Case study

You work as an administrative officer for Eastern Employment Agency. The marketing manager asks you to create a spreadsheet to be used as a summary report to promote their achievements in work placements. Information is to be presented to show weekly results as well as monthly achievements of the past quarter. The weekly information for the report is as follows:

Week ending	Client numbers at start of the week	New clients	Number of clients placed in work	Number of voluntary placements	Number of paid placements
7 January	5038	123	1231	402	829
14 January	?	234	1234	341	893
21 January	?	12	435	123	312
28 January	?	43	1121	455	666
5 February	?	341	341	23	318
12 February	?	121	234	28	206
19 February	?	12	432	231	201
26 February	?	42	123	53	70
5 March	?	411	532	43	489
12 March	?	123	522	234	288
19 March	?	12	100	50	50
26 March	?	234	123	12	111

To comply with your organisation's requirements you must:

- insert a header stating the name of the business
- insert a light blue background shading
- use a thick outline border and a thinner line for inside borders
- bold titles
- use Arial font type
- use size 14pt font.

1. Create a report of the weekly results and calculate the client numbers at the start of each week.
2. Use appropriate cell references to complete the calculation.
3. Calculate as follows:
   Client numbers at start of week = number at start of previous week + number of new clients – number of clients placed in work.
4. Create a monthly summary report as requested by the marketing manager. Use the **SUM** function to calculate summary figures for each month.
5. Save the file to an appropriate location and name it 'Work placement summary'.

Part B

Read the case study, then complete the tasks that follow.

Case study

Mara works as an employment coordinator for Eastern Employment Agency. She has been asked to produce a monthly summary report for the operations manager to present at the next management meeting. The report is to show the number of paid work industry placements. The information will be used to analyse market segments.

Organisational style requirements for the spreadsheet are as follows:

- Header stating the name of the business
- Light blue background shading
- Thick outline border and a thinner line for inside borders
- Bold titles
- Arial font type
- Size 14pt font

Mara produced the following spreadsheet for the operations manager.

paid industry placements

MONTHLY RESULTS

Month	RETAIL	TRADE	CLERICAL	TECHNOLOGY	TOTAL Number of paid placements
JANUARY	1234	231	234	1001	2700
FEBRUARY	502	12	23	258	795
MARCH	345	123	125	345	938

1. What is the purpose of the spreadsheet?

2. Who is the spreadsheet for?

3. What are the task requirements or information requirements for the spreadsheet?

4. What are the organisational requirements for the spreadsheet?

5. Has Mara produced a spreadsheet that conforms to the organisational and task requirements?

6. What could Mara do to improve the overall readability and appearance of the spreadsheet?

7. How would a style sheet help Mara?

Part C

Read the case study, then answer the questions that follow.

Case study

Gabby works for a market research firm as a research assistant in the product testing department. One of their recent projects has been to undertake a focus group to analyse and evaluate the possible launch of a new ice-cream into the marketplace. The spreadsheet summary results should look similar to the following.

Market Research
Friday, 20 February 2015

New Product	**Dream Icecream**				
Focus Group	**123**				
Rating scale:	*1=Poor*	*2=Average*	*3=Good*	*4=Very Good*	*5=Excellent*

Names	Packaging durability	Packaging appearance	Product appearance	Product taste
Gerry	4	3	5	5
Gretel	5	4	5	4
Heike	3	4	5	5
Kyle	5	4	5	5
Linda	5	4	5	4
Nigel	5	5	5	5
Vince	4	5	4	4
Vishi	2	2	2	2
Vu	3	4	4	5
Zenya	4	4	5	5
AVERAGE	4	3.9	4.5	4.4

Gabby is required to do the following:

- enter all result data using the predefined style (template)
- use the AVERAGE function to analyse overall ratings.

Gabby is new to using Excel and is not sure how to access and use the style sheet. She knows how to use the SUM function, but was not sure about the AVERAGE function.

Gabby decides to produce a spreadsheet that contains all the relevant information and presents that to the product manager. Gabby's spreadsheet looks like this.

Market Research				
Friday, 20 February 2015				
DREAM ICECREAM				
Names	Packaging d	Packaging a	Product app	Product taste
Gerry	4	3	5	5
Gretel	5	4	5	4
Heike	3	4	5	5
Kyle	5	4	5	5
Linda	5	4	5	4
Nigel	5	5	5	5
Vince	4	5	4	4
Vishi	2	2	2	2
Vu	3	4	4	5
Zenya	4	4	5	5

1. What mistakes has Gabby made in the production of the spreadsheet?

2. What should Gabby have done to proof and check the spreadsheet?

3. If Gabby thought there was a problem with the results of the calculations, what could she have done to check it?

4. What should Gabby have done to find out about style and the AVERAGE function?

5. How would Gabby work out the number of people in the focus group?

Topic 3 | Produce charts

3A Selecting an appropriate chart type and design

3B Creating and modifying charts

3A Selecting an appropriate chart type and design

When producing charts, it is important to follow both organisational and task requirements.

An organisation may have a set preference for the types of charts it uses. For example, it may prefer to use column charts as opposed to line charts because they make it easier to analyse the information. An organisation may also use certain colour codes for the presentation of data; if this is the case, these rules should be followed to ensure the organisation's image remains consistent.

Task requirements can depend on a set of instructions and protocols for producing charts. You may be asked to prepare a summary report of monthly sales as well as a chart. If this is the case, you may need to produce two separate documents. If the policy is that a certain type of chart design is used for the production of various reports, you need to do this.

If you have any suggestions for improving the readability and analysis of charts and their associated data, discuss them with your supervisor or manager.

Types of charts and their features

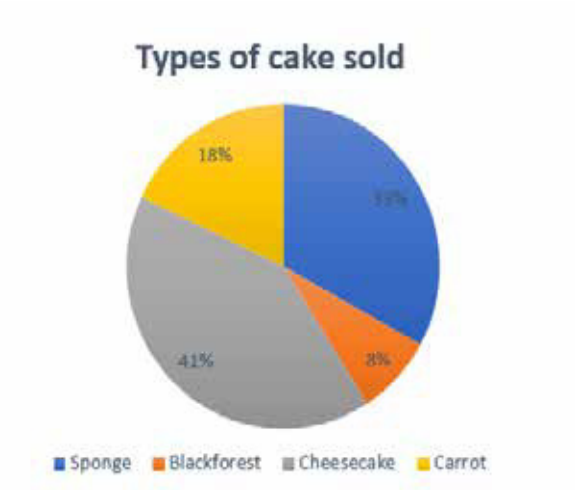
The types of charts you can select include:

- area
- bar
- column
- pie
- line
- scatter.

Charts are a good way to show the results of the spreadsheet analysis because they can be grasped quickly, without the user having to do too much thinking. For example, a pie chart or a bar chart could be used to show what percentage each of several models of cars contributes to total sales. To show how the temperature in a coolroom varies over several weeks, a line chart or a scatter chart would be best.

The kind of chart you choose and its design should reflect your organisation's needs and the task requirements.

The following example shows the percentages of types of cakes sold in a bakery presented in a pie chart. It is easier to look at the cake shop data in a chart rather than looking at the figures in a worksheet.



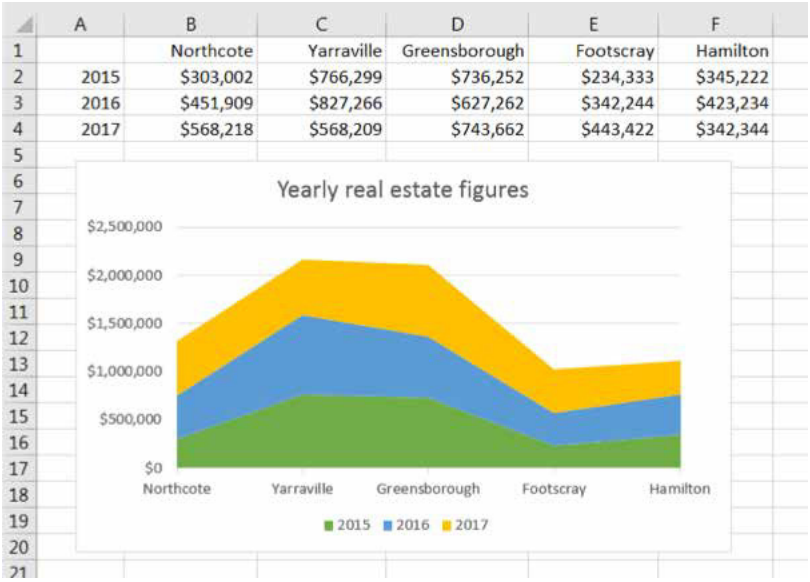
Charts in Excel are linked to information contained in the selected cells. This means that if the cell data is updated, the chart is also updated.

Area chart

Area charts can be used to demonstrate changes over time.

For instance, they may be used to compare changes to sales over the past 12 months.

The following example shows how yearly real estate sales figures vary for different outlets.

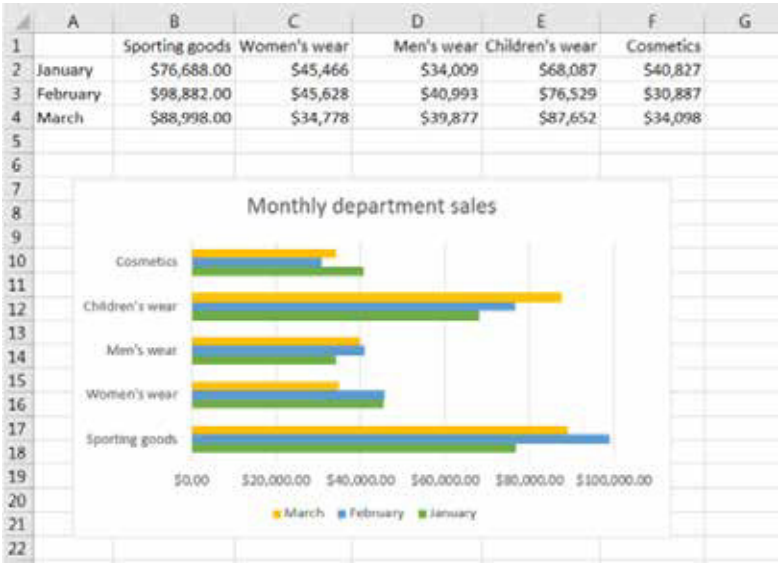


Bar charts

A bar chart displays information as a series of horizontal bars.

These charts are useful for comparing data arranged in columns or rows. Bar charts show the differences between individual items.

The following example shows how monthly sales vary for different departments of a retail outlet.



	A	B	C	D	E	F	G
1		Sporting goods	Women's wear	Men's wear	Children's wear	Cosmetics	
2	January	$76,688.00	$45,466	$34,009	$68,087	$40,827	
3	February	$98,882.00	$45,628	$40,993	$76,529	$30,887	
4	March	$88,998.00	$34,778	$39,877	$87,652	$34,098	

You can use a stacked bar chart to compare the values of individual totals to a total across multiple categories.

The following example compares monthly department sales figures, as well as the total overall amounts for the sales quarter.

	A	B	C	D	E	F	G
1		Sporting goods	Women's wear	Men's wear	Children's wear	Cosmetics	
2	January	$76,688.00	$45,466	$34,009	$68,087	$40,827	
3	February	$98,882.00	$45,628	$40,993	$76,529	$30,887	
4	March	$88,998.00	$34,778	$39,877	$87,652	$34,098	

Column charts

A column chart has vertical columns and is useful for comparing separate types of data from a data series.

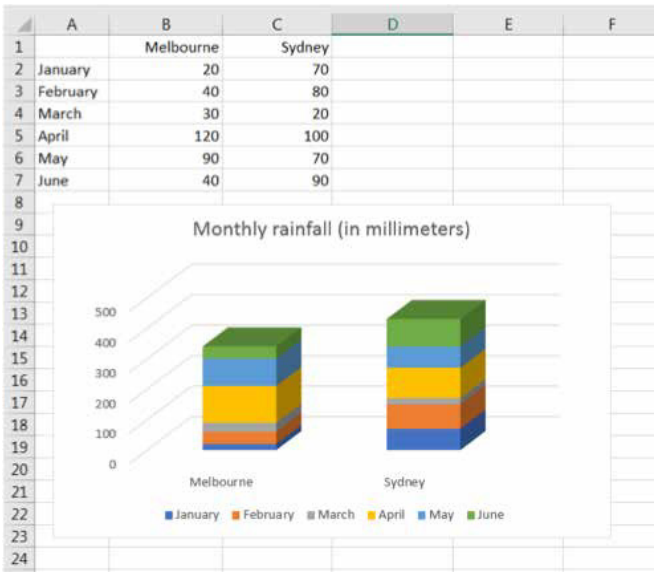
The following example shows how rainfall data in Sydney and Melbourne can be compared using a column chart.

	Melbourne	Sydney
January	20	70
February	40	80
March	30	20
April	120	100
May	90	70
June	40	90

If you prefer the 3D look for your column chart, choose 3D when making your chart selection.

You can use a stacked column chart to compare the values of individual totals to a total across multiple categories.

The following example compares monthly rainfall for Melbourne and Sydney, as well as the total overall amount.



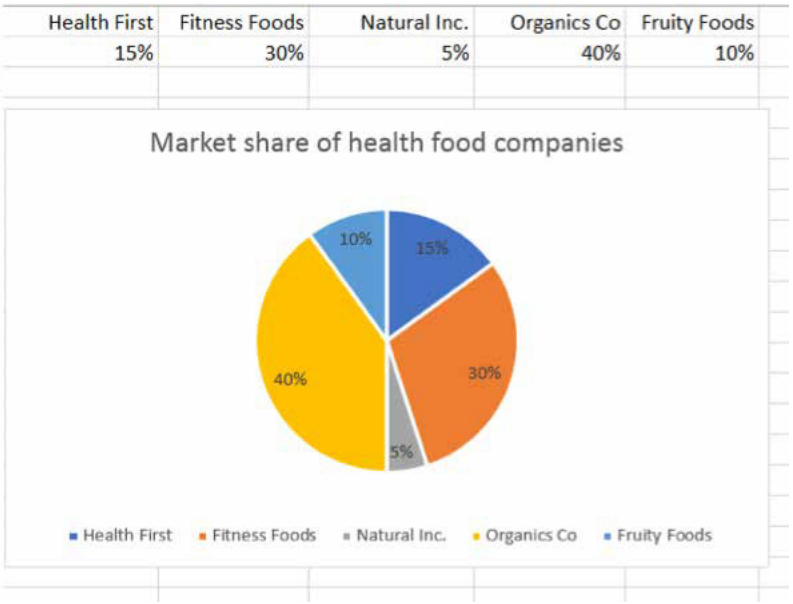
	Melbourne	Sydney
January	20	70
February	40	80
March	30	20
April	120	100
May	90	70
June	40	90

Pie charts

A pie chart shows a data series in percentage segments.

It is useful for showing data as a percentage of a whole. Pie charts are commonly used to show which products are selling or how much market share an organisation has.

The following example of a two-dimensional pie chart shows the market shares of five health food companies.



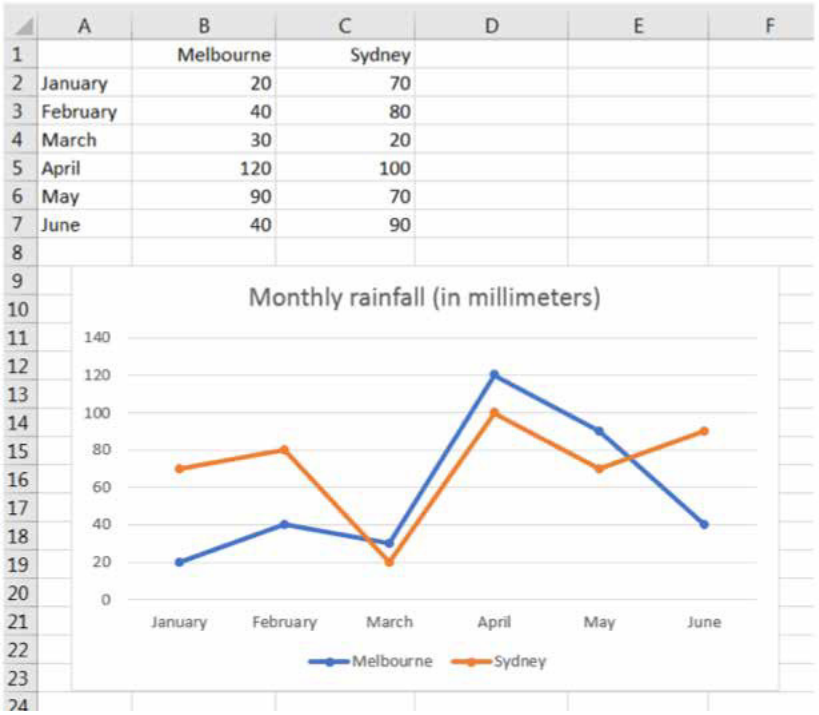
If you prefer the 3D look for your pie chart, choose 3D when making your chart selection.

Line chart

A line chart shows the movement of values in a data series using single or multiple lines.

It is useful for showing how the values of a data series can change over a period of time.

The following example uses a line chart to compare total monthly rainfall in Melbourne and Sydney.

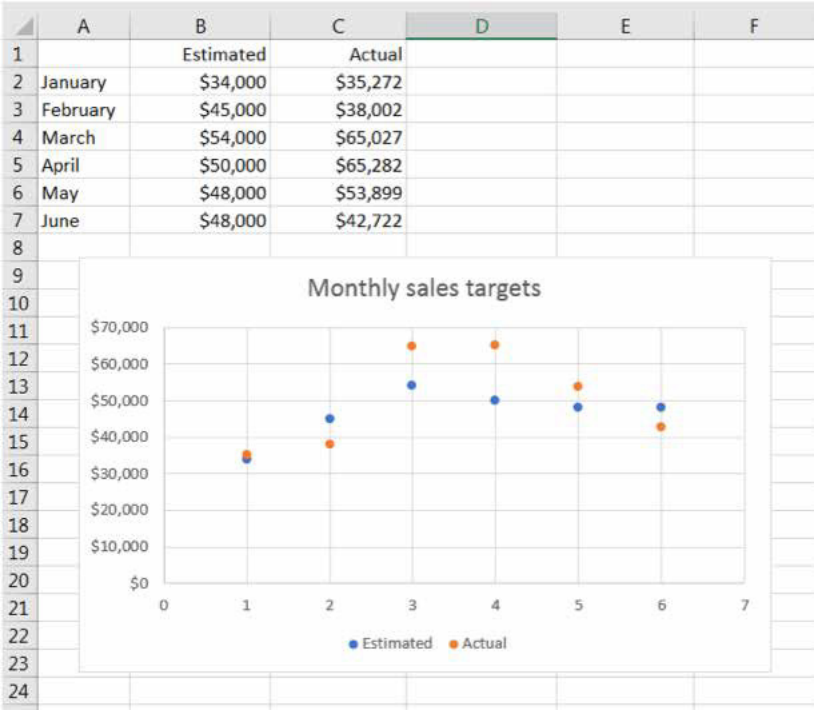


Scatter chart

A scatter chart is used to compare and arrange data to analyse the relationships between numerical information.

A scatter chart displays clusters and is commonly used for statistical comparisons.

The following example uses a scatter chart to display and analyse estimated and actual sales results.



Practice Task 12

Question 1

Using this table, note what type of chart would be best for displaying the information and explain why.

Data to be included in a chart	Type of chart used	Reason
Percentage of actual sales for individual product items		
Profit for individual retail outlets compared with last year		
Comparison of workplace hazards identified in the organisation		
A chart to show changes in workplace hazard identification over a given period of time		

Read the case study, then answer the question that follows.

Case study

Juicy Fruits is a fruit supplier specialising in fruit baskets for corporate organisations. At the end of each month, a report is compiled tallying all the fruit supplied. Information reported on includes product type, number of products supplied and sales figures.

Julian Ali, the business owner, is happy with the reports, but realises that some of the supply coordinators are finding the information cumbersome to interpret. Julian decides that in addition to the reports, he would like to trial preparing the information in chart form to compare the supply data of each of the products. He believes that a graphical representation of the data will be easier for the coordinators to decipher and compare.

As the administration supervisor, Julian has asked you to prepare an example of how the data would be presented in chart form. Julian has asked that you use bright colours in the charts as this complements the style and colour range of fruit types supplied by the business. He has also asked that you present the information in column form with product supply numbers and product types identified in the chart. It is important that there is a heading on each of the charts to clearly identify the information that is being reviewed.

Question 2

What are the organisational and task requirements for producing the charts?

3B Creating and modifying charts

To create charts in your spreadsheet, you need to know the purpose of the chart and the data you plan to present.

This helps you choose the most appropriate type of chart to use. The data to be presented in the chart is known as the data range. This information may include text and numeric data. The numeric data is what is represented in the chart and the text relates to the series (or group) of data.

The following information explains the meanings of common terms.

Axis

An axis is a line that labels the information in a chart according to the labels in the columns and rows of your spreadsheet. Axes provide a reference for measurement or comparison of the data in the chart. Most charts have a vertical axis (known as the Y-axis) and a horizontal axis (known as the X-axis).

Category

Categories are the names that are placed along the X-axis of a chart and are determined by the labels in your spreadsheet.

Data range

The data range is the selection of values you choose from a worksheet to place in a chart; for example, all the numbers in one row or one column of data.

Legend

The legend is the key used to identify the various data series. If you include the series labels from your worksheet, Excel will add these to the legend. Otherwise the legend will simply say series 1, series 2, etc.

Producing a chart

To produce a chart, you must first enter data into a worksheet.

Select the data either by clicking and dragging over it with the mouse, or by selecting one of the cells, then holding down the **Shift** key and pressing the arrows on the keyboard.

	A	B	C	D	E	F
1		Northcote	Yarraville	Greensborough	Footscray	Hamilton
2	2015	$303,002	$766,299	$736,252	$234,333	$345,222
3	2016	$451,909	$827,266	$627,262	$342,244	$423,234
4	2017	$568,218	$568,209	$743,662	$443,422	$342,344
5						

Use the **Insert** tab and select the appropriate chart under the Charts section. The type of chart you choose will depend on your organisational requirements.

A chart is linked to the worksheet it is created from, so if you alter the data in the worksheet, the chart will be automatically updated.

Practice Task 13

Create a spreadsheet, with the data below for Hemline Miller, showing sales, customer numbers and quantities sold.

Hemline Miller			
January report			
Store	*Sales*	*Customer numbers*	*Quantity sold*
Chadstone	78009	567	1298
Bundoora	95080	892	2098
Wangaratta	120708	927	1792
Seymour	110920	828	1777
Newport	102787	998	2143

Question 1

Create a column chart that compares the sales data. Include the chart heading 'Hemline Miller – January sales'.

Question 2

Create a scatter chart that compares customer numbers with quantity sold. Include the chart heading 'January – customer numbers vs quantity sold'.

Question 3

Create pie charts for the following, with relevant headings and data labels showing percentages of total sales (save your file as 'Hemline Miller January Report').

a) Sales

b) Customer numbers

c) Quantity sold

Practice Task 14

Take the following steps to produce a column chart.

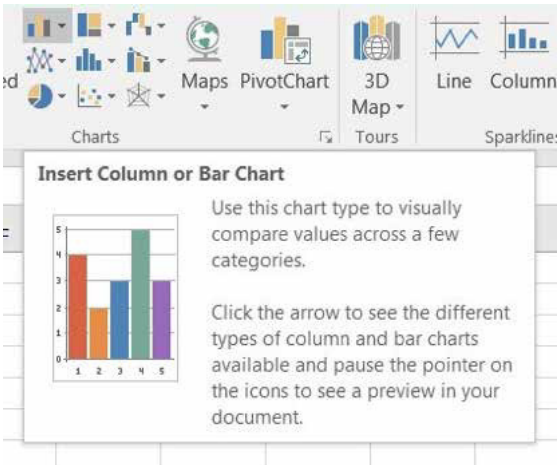
1. Open Excel and enter the data below into a worksheet. Save the worksheet as 'Company cars'.

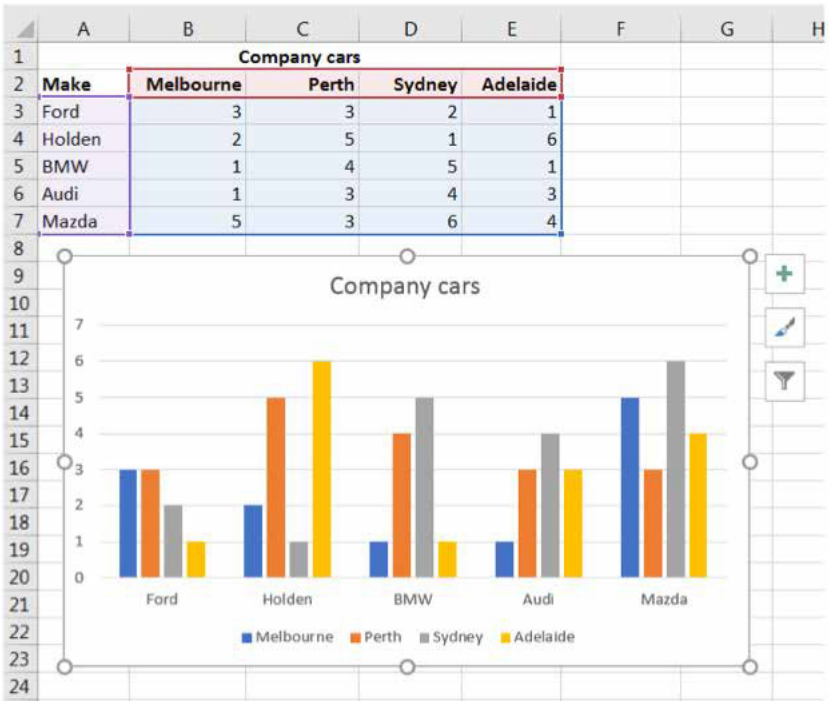
	A	B	C	D	E
1			Company cars		
2	Make	Melbourne	Perth	Sydney	Adelaide
3	Ford	3	3	2	1
4	Holden	2	5	1	6
5	BMW	1	4	5	1
6	Audi	1	3	4	3
7	Mazda	5	3	6	4

2. Select cells A4 to E9. This selection should cover all the labels and values. This selection has now become your data range. Do not include any blank rows or columns in your selected cell range.

4	Make	Melbourne	Perth	Sydney	Adelaide
5	Ford	3	3	2	1
6	Holden	2	5	1	6
7	BMW	1	4	5	1
8	Audi	1	3	4	3
9	Mazda	5	3	6	4
10					

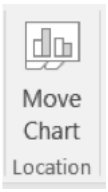
3. Go to the Insert tab and select Insert column chart. The chart will now display as an object in your spreadsheet.

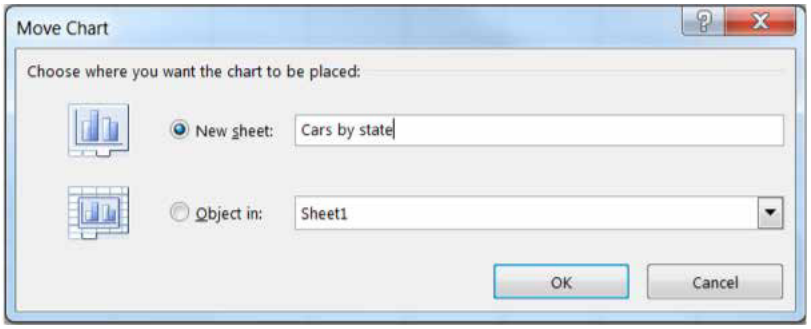




4. To move the chart to a separate sheet in the workbook, go to the Design tab and select Move Chart.

   A dialog box will appear. Select the option to place the chart in a new sheet. Give it an appropriate name, e.g. 'Cars by state'. Click OK.





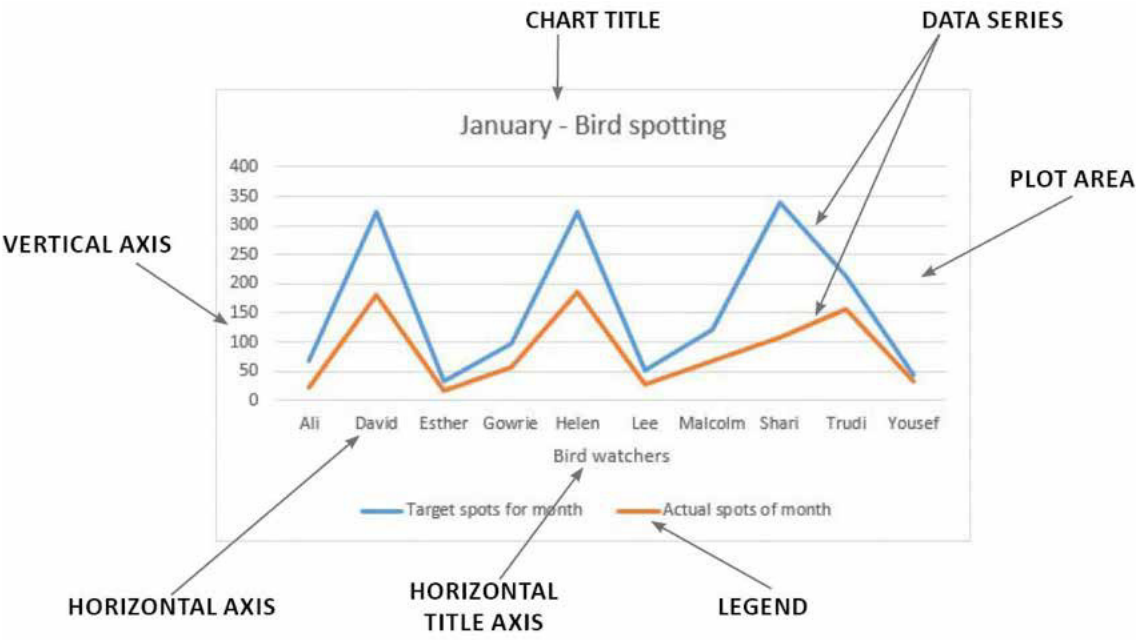
5. The chart will now have a separate sheet in the workbook. If you look at the worksheet names, you will notice that the chart now appears there.

6. If the data you want to include in a chart is not in adjacent rows and columns, use the Ctrl key to make multiple selections in different locations on your worksheet.

Formatting charts

Once you have created a chart, you need to format it to suit your organisational requirements and make it easier to understand.

You can improve the appearance and ease of understanding by using titles, axis labels, legends, colour and changes to layout. You can format the data range, text and legend or add a pattern to the chart area. Look at the following example of a chart and notice the different components that can be formatted.



Each component of the chart can be formatted by selecting the item, right-clicking on it to display the shortcut menu and then making formatting choices as appropriate. You can also use the **Chart Tool** buttons.

Purpose of formatting charts

You will need to format your chart to adhere to organisational and/or task requirements. Formatting the chart can also enhance presentation and the information's overall readability.

Balance the time taken in preparing the chart with the required output medium. For example, if you do not have a colour printer and are not presenting the charts electronically, it will not be necessary to spend a lot of time selecting colours. You will only need to ensure the font type and size is appropriate and that the chart is well presented.

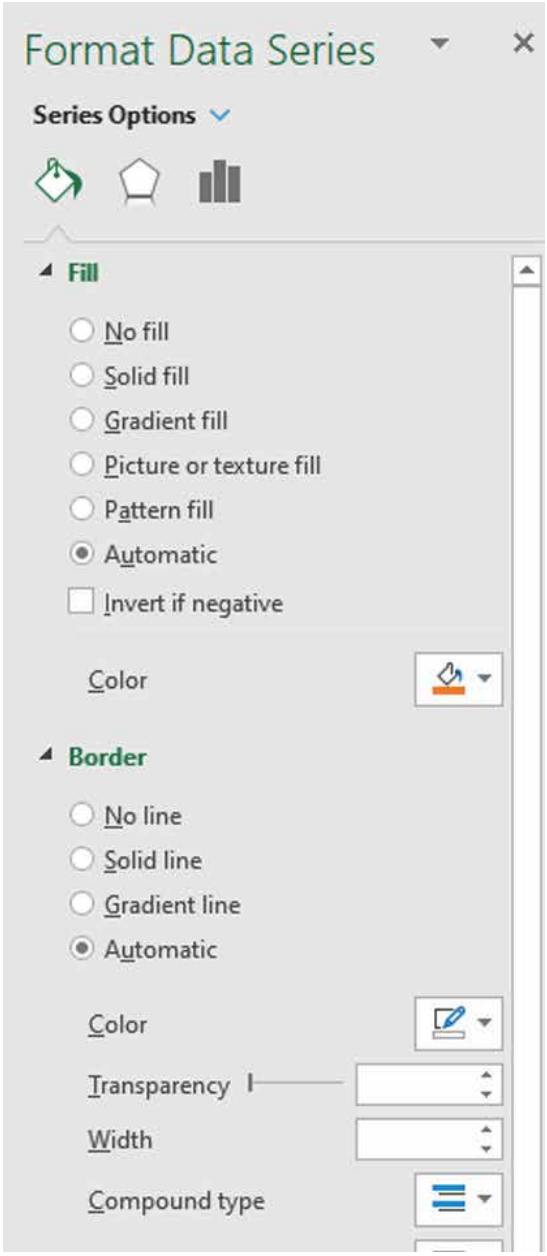
All parts of the chart are separate components and can be formatted and adjusted as appropriate. To select a part of the chart, point and click to select it – then use the tool bar or right-click mouse shortcut menus to make appropriate changes.

Titles in a chart are separate objects and can be moved around and re-sized by clicking and dragging with your mouse.

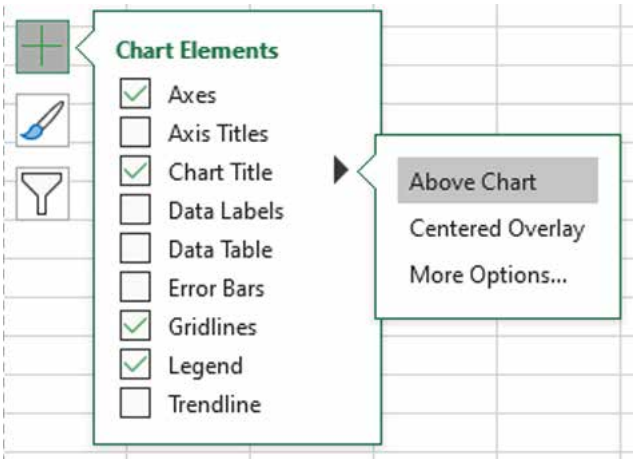
Practice Task 15

Take the following steps to format a chart.

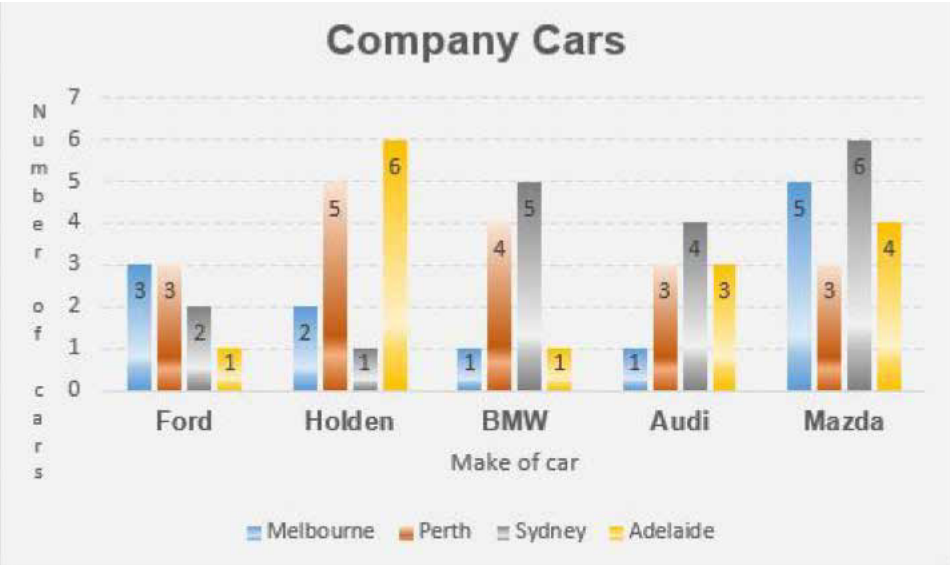
1. Open the spreadsheet with your Company Cars chart. Click inside any of the data series columns. Right-click your mouse and select **Format Data Series**. You will see the following **Format Data Series** dialogue box.
2. Click **Fill** and select **Gradient** fill, then choose a preset colour and click **Close**. You will notice that the data now has a shade effect in the chart. If you want to change the look to something different, instead of selecting **Gradient** fill, select **Picture** or **Texture** fill, and select an appropriate texture.
3. Repeat this process to choose gradient fills for the other columns.
4. The Plot Area is the space behind the columns. The Chart Area is the space behind the legend and the chart labels. Right-click in the Plot Area and select **Format Plot Area**. In the dialogue box, select **Solid Fill** and choose an appropriate colour. Click **Close**.
5. Right-click in the **Chart Area** and select **Format Chart Area**. In the dialogue box, select solid fill and choose an appropriate colour. Click **Close**.
6. To add a border to the **Chart Area**, right-click and select **Format Chart Area**. From the dialogue box, select **Border colour**, choose **Solid Line** and make the colour black. Click **Close**.



7. To add a Chart title, select **Chart Title** and then **Above Chart** from the **Layout** tab.



8. To add axis titles to the chart, from the **Layout** tab select **Axis Titles**, and add a horizontal title and vertical title.
9. To format the text in the Chart title, select the **Chart Title**, and use the formatting tools on the **Home** tab.
10. To add data labels to the chart, select **Data Labels** from the **Layout** tab, and then select an appropriate position in the chart (such as centre).
11. Format gridlines in the chart by right-clicking and selecting **Format Major Gridlines**. Select **Line Style** and choose a dashed line style. Click **Close**.
12. The chart should appear similar to the following example.



Modifying charts

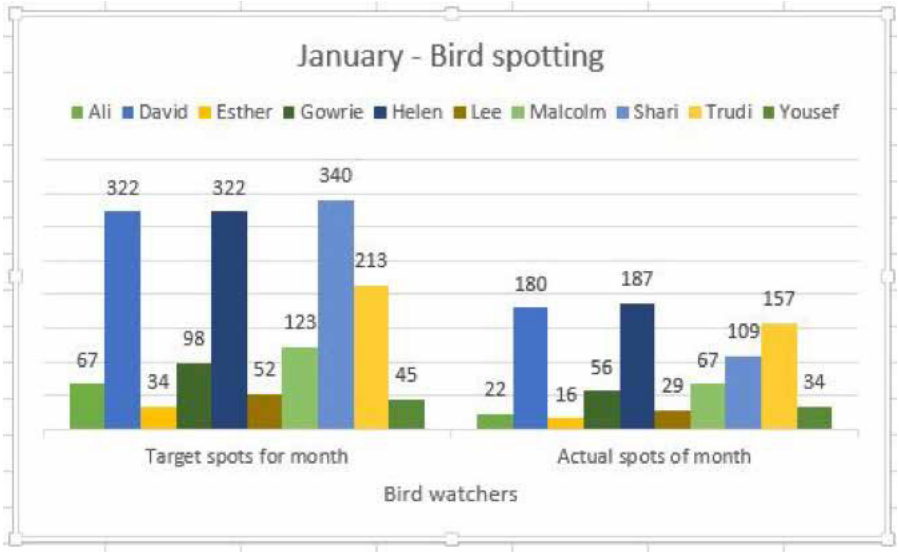
A chart may need to be modified. This could mean changing the chart type or data range, or reformatting the chart.

Formatting changes are done with the chart tools or by right-clicking in the chart area or plot area. Once you insert a chart into your worksheet, you will notice that two new tabs appear – **Design** and **Format**.

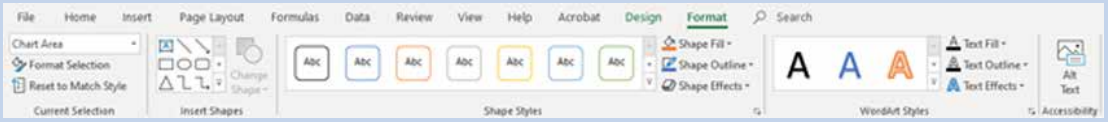
The following provides a list of tools you can use to format and modify charts.

Design tools

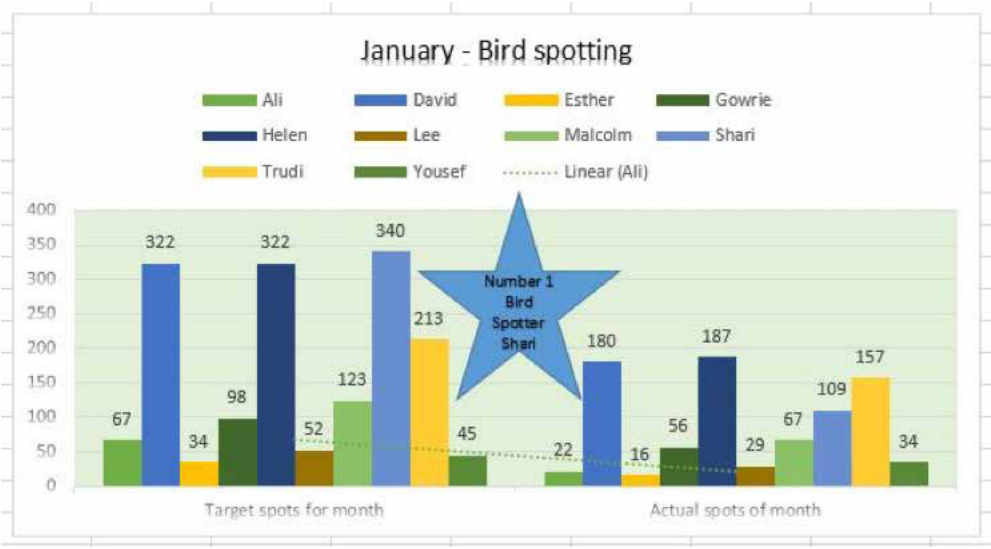
- Design tools allow you to change the type of chart selected, adjust the style and layout, alternate the view of data between row or column, and check or adjust the data selected.
- The Chart Layouts section can be used to change the way the chart is set out. Layout tools allow you to adjust the appearance of the chart by adding titles, labels, gridlines, etc.
- Chart Styles can be used to change the colours and presentation of the chart.
- The Data section can be used to change the data range or adjust the way data is presented in the chart.
- You can select Change Chart Type to change the chart type (for example, from a column chart to a line graph).



Format tools

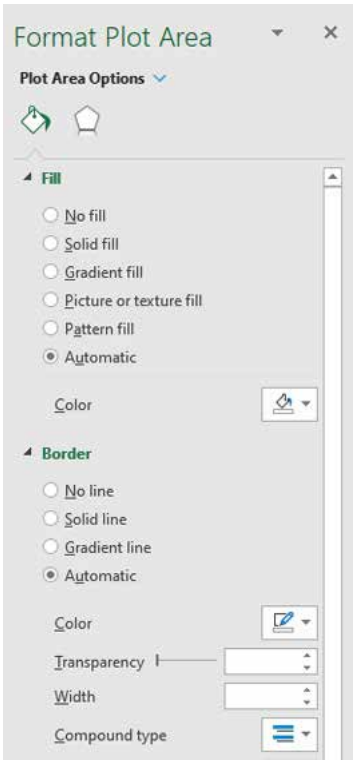


- Format tools enable you to alter the general appearance of the chart, such as colours, font type and font size.
- You can use the Current Selection group to adjust the appearance of various components of the chart (such as chart title and plot area).
- The Insert Shapes section can be used to add shapes and text. You can also use the **Insert** tab to add pictures from external sources.
- The Shape Styles and WordArt Styles sections can be used to add effects to shapes and labels used in the chart.
- The Arrange section can be used to display the selection pane, which enables you to hide or display charts in the spreadsheet.
- You can also change the height and width of the chart, adjusting the overall layout.



In addition, you can format the chart by clicking on it and selecting options from the drop-down list. The first option allows you to add elements such as a trendline and data table, whereas the second option allows you to change the style and colour scheme.

A window will also appear on the right allowing you to format the plot area.



Summary

- A chart is a graphical representation of selected worksheet data.
- Charts are visually appealing and make it easy to display comparisons, patterns and trends in data.
- The type of chart you choose to display data depends on organisational and task requirements.
- Each component of a chart can be formatted and adjusted as needed.

Learning Checkpoint 3

Produce charts

Part A

1. Write a short paragraph for each of these chart types explaining the type of data most suited to each type:

   a) Pie

   b) Column

   c) Scatter

d) Line

2. Use the data below to create the following charts. Save the spreadsheet to an appropriate location and name it 'Jim's Booksellers – January sales comparison'.
   a) A pie chart to show percentage achieved for individual sales consultants
   b) A column chart to show target and actual sales figures for individual sales consultants
   c) A scatter chart to show clusters of actual sales with percentage achieved

To calculate the percentage in the last column you need a formula that divides the actual sales by the target sales.

Jim's Booksellers January comparison – target sales figures to actual sales figures			
Sales consultant	**Target**	**Actual**	**Percentage of target achieved**
Amanda	$80000	$71891	
Geraldine	$75000	$72910	
Harry	$68000	$62820	
Jim-Bob	$87000	$92192	
Maureen	$85000	$78282	

Part B

1. Open the spreadsheet 'Jim's Booksellers – January sales comparison', which you made in Part A. Format the pie chart as follows:
   - Use the **Design** tab tools to make adjustments to layout and style. Make choices according to your preference.
   - Add data labels to the charts.
   - Add gridlines, as appropriate, to the charts.
   - Format the plot area using a gradient.
   - Add a shape to the chart to identify the highest-achieving sales consultant.
   - Use WordArt styles to format the chart title.
   - Use Shape styles to apply dark borders around the chart.
   - Preview your charts before printing on an individual page.

Topic 4 | Finalise and present spreadsheets

4A Finalising and reviewing spreadsheets

4B Printing spreadsheets

4C Naming and storing spreadsheets appropriately

4A Finalising and reviewing spreadsheets

There are some standard ways to help meet time lines for data entry and to meet the accuracy requirements for the task.

Whenever you are given a work task, you need to plan a timeline. A timeline breaks the task into steps and details when each step must be completed by.

Find out when the spreadsheet is required and enter the date in your diary. Identify and plan the task requirements to work out how long it is likely to take. You will need to plan carefully to avoid a last-minute panic. If you are developing a spreadsheet for someone else, always clarify exactly what is required; for example, are formulas needed and do you have to create a new column? If you have to write formulas, make sure you allow enough time to have them checked by your manager.

If you are relying on others to provide you with data, you need to allow for this. You should give reminders and follow up so others do not delay the whole project.

Organisational time lines

Your supervisor may give you the deadline for completing set tasks; for example, preparing a draft summary report by 2pm. You may also have regular deadlines for common tasks, such as creating a monthly report of customers who are overdue in paying their invoices.

Using a diary system and a to-do-list can help you prioritise tasks and stay aware of the timelines required for tasks.

You may find you have conflicting work priorities and timelines. In these situations, your supervisor may be able to help you by suggesting ways to meet the deadline, or they may be willing to adjust the deadline.

Preparing a checklist

Creating spreadsheets will become easier once you are familiar with your organisation's requirements. In the meantime you can prepare a checklist to help you plan your work tasks.

Look at the following example of a checklist.

Task	Deadline	Requirements	Completed
Create a spreadsheet for the manager	Tuesday 20 March	▪ Collect the product data ▪ Check the data ▪ Enter the data ▪ Proofread the data ▪ Format the spreadsheet using the organisation's style guide ▪ Create a new column named 'Interest' ▪ Write a formula to calculate 10 per cent of customers' balances ▪ Create a column named 'Sale price' ▪ Write a formula to calculate the new sale price	✓

Accuracy of data

The accuracy of the outputs from your spreadsheets will depend on the accuracy of the data going into them.

You must ensure that the data being entered is good enough to achieve the task; for example, if the manager wants calculations to two decimal places and your data is very rough, then the answers you provide may be meaningless.

Try to stick to timelines and use the software appropriately and efficiently, to save time and ensure that data is accurate. It is better to complete the task carefully and methodically rather than producing work that needs to be repeated due to inaccuracies.

When you are planning a spreadsheet task, you may think that designing and creating your spreadsheet is the biggest part of the job. Yet collecting, checking and entering the data can take a long time. This part of the process can cause delays, especially if you need other people to contribute data. The data that goes into your spreadsheet needs to be complete and accurate to give the correct results.

Use shortcut menus (by right-clicking the mouse button) to bring up quick commands. Use shortcut keys to undertake actions quickly (e.g. use **Ctrl+X** to cut and **Ctrl+V** to paste).

Familiarise yourself with the tools available in the ribbons and the groups of tools under each tab. If you think there should be an easier way of doing something, there probably is. Remember, you can always search the Excel help facility for assistance.

Use the numeric keypad on your keyboard to enter data, and try to improve your typing speed and accuracy for text-based entries.

Checking and proofreading data

If you are working under tight deadlines, it is easy to make mistakes, such as subtracting one cell from another instead of adding them.

Proofreading is the process of carefully reviewing a document for any mistakes. To proofread a spreadsheet, you need to check for correct layout, ensuring consistent styles have been used, that the information is clear and easy to read, and the data is accurate.

To check values, compare the values you have entered with the values you were given. Make sure that you have not made any errors when copying values and that you have entered all the data in the correct places.

To check errors in labels, you can use the **Spelling** function under the **Review** tab.

This will pick up words you have misspelt, but it will not help you with product names or customer names and addresses, so you will need to check these carefully.

Practice Task 16

Read the case study, then answer the questions that follow.

Case study

Crystal works as an administrative officer for a local government agency's conference and meeting centre. Her role involves coordinating the bookings for the centre, as well as maintaining an adequate supply of stock and resources for the centre's clients. Crystal's supervisor has asked her to produce a report by the end of the day summarising all the clients that have used the centre in the past 12 months, along with a chart that shows the percentage of their usage. Crystal went about her daily tasks as usual. She allowed herself the last hour of the day to prepare the report and chart. When Crystal began preparing the report and chart, she realised that it was a much bigger job than she had anticipated. Crystal realised she needed a lot more time to compile the information for her supervisor.

Question 1

What should Crystal do?

Question 2

What could Crystal have done differently when agreeing to the deadline for the task?

Question 3

How important is the data-gathering component of this task?

Question 4

What does the task actually require Crystal to do?

4B Printing spreadsheets

A workplace normally has standards for staff to adhere to when printing.

An organisation may require you to follow guidelines regarding printing and paper use.

For example, you may be expected to use recycled paper when printing drafts. Using print preview to proof spreadsheets before printing can help to save paper.

Organisational and task requirements may specify things like the number of copies you should print, and whether colour printing is permitted.

When preparing to print spreadsheets, ask yourself the following questions:

- What do I need to print – workbook, active spreadsheet, selected data or chart?
- Did I preview before printing?
- If it is a draft spreadsheet, should I print on recycled paper?
- How many copies of the spreadsheet do I need?

Print preview

Print previewing lets you check spreadsheet accuracy, layout, presentation, consistency and readability.

Part of the proofing process for finalising spreadsheets and charts is to preview them before printing. Print preview lets you check that the requirements originally specified have been met and allows you to check layout and overall appearance.

To preview your spreadsheet or chart, go to the **File** tab and select **Print**. The preview will be visible in the right-hand side.

If you have selected the chart object, only the chart will be displayed in print preview, not the data. Excel assumes that if you have selected the chart, that is all you want to print. If you want to preview both the data and the chart, ensure the worksheet is active and not just the chart.

If the chart is a separate sheet in the workbook and not an object with data, to preview the chart you will need to select the worksheet that it is contained in.

The default option for print preview is to preview only the current worksheet in view. If you want to view the entire workbook, you need to select all worksheets. To do this, hold down the Ctrl key and click on each worksheet before viewing print preview.

Be careful if you are selecting multiple worksheets. If you have a number of worksheets active at one time, any data that you alter and input will be repeated on all of the selected worksheets. To deactivate multiple selected worksheets, simply click on one worksheet, which will become the active worksheet.

Print tools

There are a number of tools you can access and apply before printing your spreadsheet.

To access these options, select **File**, then the **Print** tab. Here you can do the following:

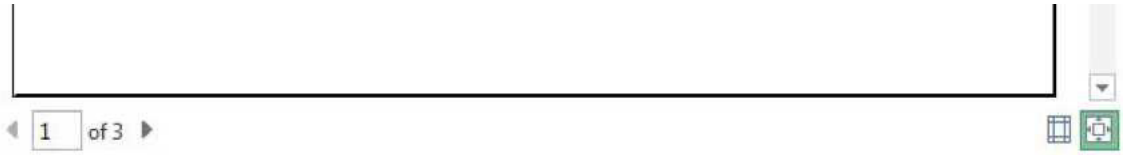
- print the workbook, spreadsheet or selected object
- enter the number of copies you want to print
- select double-sided printing
- alter the orientation from portrait to landscape

- choose the paper size
- adjust margins and scaling.

Further page setup options are available by clicking on the link below the **Scaling** drop-down menu.

Below print preview there are buttons that allow you to:

- view next and previous pages
- zoom in or out on the spreadsheet
- show margins of the document and, if needed, make manual adjustments using your mouse.

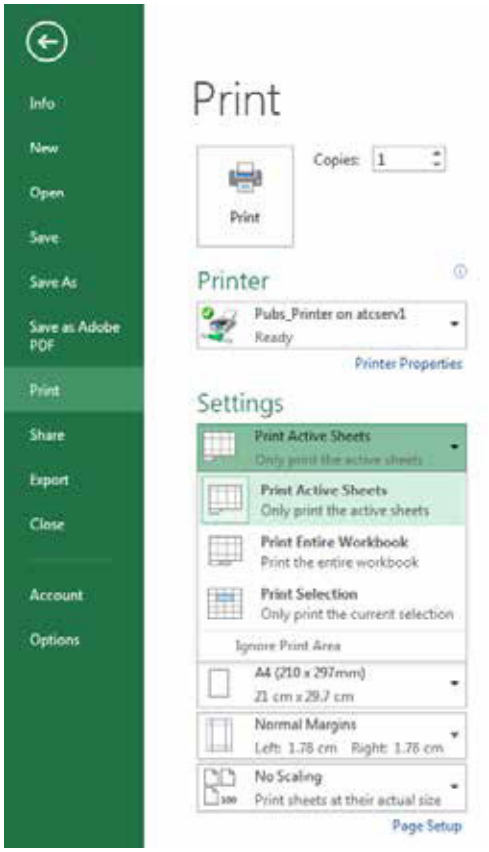


The first drop-down menu under Settings identifies what is to be printed and will show active sheets. From the drop-down menu you can choose to print the entire workbook or a selection of cells.

From **Page Setup** you can adjust the scaling. Scaling allows you to adjust the size of the printout, making it larger or smaller on the printed page.

Alter the printer that you are printing to if needed, and select how many copies you want to print. It is also possible to alter how the multiple printed copies are collated.

You can adjust the size of the printout by altering **Adjust** to more than 100 per cent of normal size in the **Page Setup** dialog box.



Printing a selection from a workbook

You may be dealing with a very large worksheet or your manager may have requested only some information from a worksheet. If this occurs, you may need to print only part of a worksheet. To do this, select the cells you wish to print. From the **File** tab select the **Print** tab. From the first drop-down menu under settings choose **Print Selection**. Click the **Print** button.

If you want to print formulas entered in a worksheet, go to the **Formulas** tab and select **Show Formulas** from the **Formula Auditing** section.

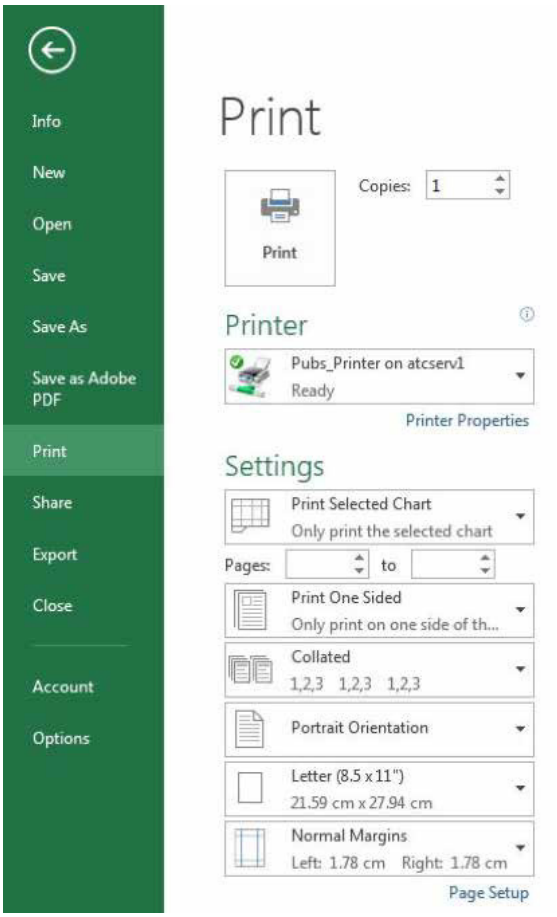
When in print preview, go to **Page Setup** and select **Fit** to fit your worksheets on one page or on a number of pages.

To print an entire workbook comprising multiple worksheets, follow the instructions for printing a selection, but from the drop-down menu, select **Print Entire Workbook**.

Practice Task 17

Open the file Hemline Miller January report.

1. Preview the spreadsheet. Check the appearance of the data and charts, and make any necessary adjustments before printing. Print one copy of the spreadsheet.
2. Select cells A4 to B9 – this will select only the store and sales data. Print only the selected data.
3. Select the column chart and select **File**, then **Print**. Notice that **Print Selected Chart** is automatically selected. Alter the printer that you are printing to if needed, and select how many copies of the chart you want to print. Click the **Print** button.
4. Print out the Store and Sales columns. Adjust the size of your selection until it is 150 per cent of normal size.



4C Naming and storing spreadsheets appropriately

You need to follow any requirements of your organisation for naming and storing spreadsheet files.

This will make it easier for you and your colleagues to retrieve spreadsheets when needed. Some organisations have strict naming standards that must be adhered to, such as all project files having to start with 'PRO'. Another example is using product codes rather than descriptions. It is better to use a product code as this is individual, whereas there may be many products with similar descriptions, so it can become confusing. Find out the naming standards for folders and files in your workplace.

When you have a spreadsheet stored in a folder, it must have a unique name. No two spreadsheets stored in the same location can have the same name. Excel will let you know if a file with the same name already exists, and you will have to save the file using an alternative name. If you are not sure of the procedures for saving and storing spreadsheets, ask your supervisor.

When closing Excel, always follow procedures and exit the program correctly. This ensures the data you have entered into the spreadsheet does not become corrupted the next time the spreadsheet is used.

Naming spreadsheets

As well as placing folders and files in the appropriate locations, you also need to give them appropriate names. Naming conventions need to be kept consistent, simple and meaningful. The file name you choose may include any combination of numbers or letters. Some characters cannot be used in filenames, including: . , / \ * ? <. Appropriate naming conventions help people identify and retrieve files.

When saving, Excel automatically adds a file extension to your spreadsheet. The file extension identifies the type of program that the spreadsheet has been created in, and tells your computer system what program to use when opening the file again. In Excel 2016, all spreadsheets are saved with the extension .xlsx. For much earlier versions of Excel (1997 to 2003), the extension is .xls.

Excel 2016 has some features that are not available in previous versions. If you are creating a spreadsheet that others need to access electronically with a version older than Excel 2007, you will need to work in compatibility mode. Compatibility mode turns off some of the new features, which ensures that people working in older versions will have full editing capabilities.

To save a spreadsheet in compatibility mode, go to the **File** tab, select **Save As**, and select **Excel 97–2003 Workbook** in the **Save As Type** list.

Storage security

Security measures such as usernames and passwords allow users different levels of access to files on an organisation's server.

Information is a valuable asset in any organisation. How information is stored and the security measures used to protect it are central to an organisation's procedures.

The spreadsheets you create will usually be stored on a server that allows access to multiple users. A server delivers information and software to other computers linked by a network.

To enable staff to log on to a server, the systems administrator will issue each person with a username. The user must then create a password. Usernames and passwords:

- give users access to the information they require to complete workplace tasks
- allow users to have different levels of access to information.

You may find that some of the spreadsheets you work with are confidential. Ask your manager for your organisation's policies regarding confidential material.

Authorised access

Many organisations have protocols in place where you can only access those parts of the shared network that are relevant to your work or your department.

Authority to access various parts of the shared network are provided by the organisation's systems administrator. If you do not have access to a part of the shared network that you need access to, discuss this with your manager.

It is also possible to limit access to spreadsheets that you create by using passwords. Passwords are commonly used for spreadsheets that contain confidential, private or sensitive information, such as profit analysis and staff details. Passwords can be used to limit access to opening spreadsheets or to limit the ability to modify information in the spreadsheet.

To place a password on a spreadsheet, open a spreadsheet and select the **File** tab. Under **Info**, select **Protect Workbook**, then select **Encrypt with Password** under the drop-down menu.

Type in a password (write down the password or ensure it is one you will easily remember) and click **OK**. Save your document. If an error message appears stating, 'There is already a file with that name existing, do you want to replace existing file?', select **Yes**. This will override the current file and replace it with one with a password.

Close the spreadsheet and open it again to test that the password is working.

Backing up and safeguarding data

Many organisations have set procedures for backing up files.

Backing up files is an important practice as it helps to prevent the loss of documents and information, and is extremely useful if something happens to the network or computer system as you will be able to retrieve previous documents.

In many large organisations this is administered through the IT department and is an automatic process. In this case, the only thing you need to do is save your files to the appropriate network drive and folders.

In smaller organisations, it may be necessary for you to back up files to an external network or drive. This may be done on a daily or weekly basis. Check with your supervisor for the relevant backup procedures.

USB sticks are useful for storing and backing up information, especially when you require a portable copy of the information.

Data also needs to be safeguarded against accidental or deliberate damage.

Data loss is usually caused by human error or system failure. Many organisations use a data cartridge or cloud-based storage to back up information on a database.

A server is made up of many files and folders. Organising this information helps users find what they want. If you are saving information onto a server, make sure you know where to put it. Save your work frequently at various stages through the production process. Ask about your organisation's policies regarding the storage and security of spreadsheet files.

Policies for filing hard copies of spreadsheets

It is common for spreadsheets stored digitally to also be stored in hard copy.

This guards against a computer system failure. Hard-copy storage requires space and the establishment of a filing system that uses consistent, simple and meaningful names, similar to digital storage.

Hard-copy spreadsheets must be kept up to date. Physical storage needs to be managed well since storage space is often scarce and valuable. Old or superseded spreadsheets should be destroyed on a regular basis. Retention schedules list the timeframes that spreadsheets need to be kept before they can be destroyed. Spreadsheets without permanent value may be scheduled for eventual destruction. Find out what kind of hard-copy filing system is used at your workplace; ask your supervisor if you are unsure.

Exiting the application safely

After creating or modifying a spreadsheet, you need to exit the software application without causing damage or data loss.

Data loss occurs when a computer program stops performing its expected function. Often the program or even the whole computer may appear to freeze. All computer users will experience data loss at some time. Data may have been accidentally erased or corrupted and made inaccessible.

To exit the spreadsheet program, click the **Exit** button, which is located in the top right corner of the window. If you have recently made changes to your spreadsheet, you will be prompted to save your document.

Precautions to prevent data loss
▪ Try to work on only one spreadsheet at a time.
▪ Data loss can occur if someone else tampers with your work. If you are working on a spreadsheet at your workstation, lock your computer or exit the application before leaving your workstation unattended.
▪ If you need to work with multiple applications open, make sure you close applications that are no longer needed. This will help your computer work more quickly and will prevent data loss in the event of computer failure.
▪ If your computer starts to behave in an unusual way, save your work and shut it down immediately, and do not turn it back on until you get assistance.
▪ Make sure your computer has up-to-date antivirus, antispyware and firewall programs to protect it against malware from the internet. Also check that it has the latest security updates.

Practice Task 18

Part A

Read the first case study, then answer the questions that follow.

Case study

Matthew works as an office administrator in a large organisation. His duties include formatting reports and saving them on the server. He is also responsible for backing up the server at the end of each day.

At the end of a busy day, Matthew has completed several reports for different departments in the organisation. He saved each of them in a different location, and it took him a while to work out where they all belonged. He was not sure if he saved them all in the correct place. After this, he was running late and decided not to back up the server.

The next morning, the reports that Matthew had saved were needed for an important board meeting. However, during the night a virus had infected the server, destroying all the information from the previous day.

Question 1

What would be the consequences if Matthew did not save some of the reports in the correct place?

Question 2

Can you think of any consequences of not backing up data on the server?

Part B

Read the second case study, then answer the questions that follow.

Case study

Fred has retired from an organisation after working as an administrative assistant for 10 years. The areas Fred was responsible for were accounts and projects. The day after he retired, someone needed a file that Fred had created and stored. The file contained vital accounting information. It was discovered that Fred had saved more than 500 files in a variety of folders and the file could not be located. The folders had ambiguous names such as 'Folder1' and 'Folder2' and the files had names such as 'august1' and 'march2'.

Question 1

Describe why Fred's folder and file naming system failed.

Question 2

Fred was responsible for two areas. What could he have done to make sure files could be easily located?

Question 3

Explain why folder and file names should be consistent, simple and meaningful.

Summary

- Make sure you have formatted, checked all formulas and functions and proofread your spreadsheet before printing.
- Working within a designated timeline means you must plan your work.
- Collecting, checking and entering data can be a big part of the task.
- You should always preview your work before printing.
- It is possible to print a whole spreadsheet or parts of a spreadsheet.
- A chart can be printed on its own or as part of a worksheet.
- You need to understand your organisation's policies and procedures for saving and storing spreadsheets.
- You may need to restrict access to sensitive information by setting a password.
- It is important to safeguard and back up files.

Learning Checkpoint 4

Finalise and present spreadsheets

Part A

1. Using the data below, create a professionally presented spreadsheet and appropriate chart to compare daily rainfall each year.

Rainfall in millimetres		
	2017	2018
1 January	23	34
2 January	25	41
3 January	34	42
4 January	37	20
5 January	42	23
6 January	19	24
7 January	20	33

2. Print your spreadsheet on one page – landscape page orientation, incorporating the chart as an object of the spreadsheet.
3. Save the spreadsheet to an appropriate location and name it 'Daily-rainfall'.
4. Use the checklist below to ensure that you adhered to requirements for finalising your spreadsheet.

Task	What to check for	✓
Data entry	▪ Accuracy of data input	❒
Data formatting	▪ Formatted professionally – appropriate use of styles, colour, font type, font size, bold, italic, underline, borders, shading, alignment, etc.	❒
Chart	▪ Chart inserted as an object ▪ Selected chart meets analysis requirements ▪ Formatted professionally – appropriate use of layout and styles, colour, labels, titles, borders	❒
Save file	▪ Saved as 'Daily-rainfall' ▪ Saved to appropriate file location – drive and folder	❒

Task	What to check for	✓
Print preview	▪ Print preview used to check data, layout and overall presentation ▪ Any required adjustments to content, layout, appearance made	❒
Print	▪ Printed single page to selected printer ▪ Printed in landscape orientation ▪ Spreadsheet data and chart on same page	❒
Exit Excel	▪ Exited Excel ensuring all work is saved appropriately	❒
Adhere to task requirements	▪ Followed instructions ▪ End result: One-page printout – spreadsheet data and chart, professionally presented	❒
Meet designated timelines	▪ Able to meet designated timeline ▪ Negotiated extension to timeline if needed	❒

Part B

1. What can you do to improve your speed and accuracy when working with spreadsheets?

2. Why is it good practice to preview before you print the final spreadsheet?

3. What tools and systems should you use to ensure that you meet timelines?

4. How can you name and store your spreadsheets to ensure easy access in the future?

5. What can you do to prevent loss or damage to your spreadsheets?

Part C

Use the following data to create a professionally presented spreadsheet and chart that compares target stock supply with actual stock supply.

Save the spreadsheet to an appropriate location and name it 'January stock supply'.

Our Office 2 U – January stock supply Target vs actual			
Product code	**Target**	**Actual**	**Percentage of target that was achieved**
PC239	4000	4309	
PC340	3000	2987	
PC401	2500	1076	
PC509	4300	4109	
PC617	3800	4026	

Include the following components in your spreadsheet:

- Footer stating the file reference details
- Chart legend, chart title and axis titles
- Blue, Arial,10-point font

Make other appropriate formatting choices to ensure the spreadsheet and chart are professionally presented, such as a landscape orientation and centring the spreadsheet on the page – horizontally and vertically.

Make sure you:

- preview before printing – print the spreadsheet and chart on separate pages
- save to an appropriate location and name the spreadsheet '**January-stock-supply**'
- exit the program ensuring that all files have been saved as appropriate.