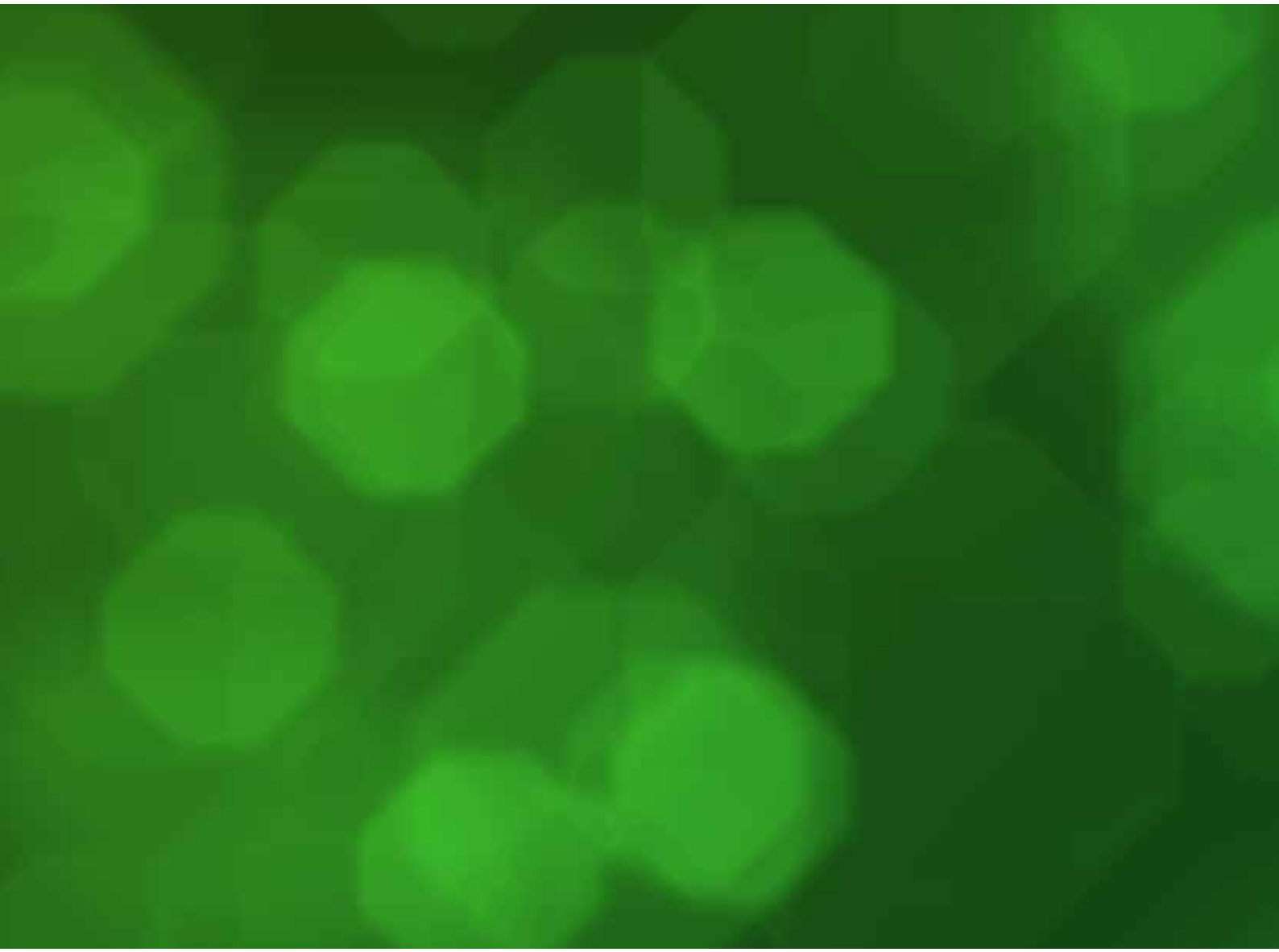
BSBITU304
Produce spreadsheets
Release 1



Learner guide

Aspire learning resources

BSBITU304
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Release 1

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Aspire Version 1.1

Aspire learning resources

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BSBITU304 Produce spreadsheets Release 1

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Contents

Before you begin

This learner guide is based on the unit of competency *BSBITU304 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 and case studies	Examples of completed documents that may be used in a workplace are included in this learner guide. You can use these examples as models to help you complete practice tasks and learning checkpoints. Case studies highlight 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.
Video clips	Where QR codes appear, learners can use smartphones and other devices to access video clips relating to the content. For information about how to download a QR reader app or accessing video on your device, please visit our website: www.aspirelr.com.au/help 
Summary	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 outlines specific foundation skills noted for your learning in this learner guide.

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
Oral communication	• Participates in exchange of information to determine whether formulae utilised produce result required
Numeracy	• Uses mathematical equations to create simple formulae and validate numerical data
Navigate the world of work	• Recognises and follows explicit and implicit protocols and meets expectations associated with own role
Interact with others	• Collaborates with others to achieve joint outcomes
Get the work done	• Uses advanced features within 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 Use safe work practices	❑ Confident ❑ Basic understanding ❑ Not confident
	1B Minimise wastage	❑ Confident ❑ Basic understanding ❑ Not confident
	1C Identify spreadsheet task requirements	❑ Confident ❑ Basic understanding ❑ Not confident
Topic 2 Design a spreadsheet	2A Design a spreadsheet to suit the purpose and requirements of the task	❑ Confident ❑ Basic understanding ❑ Not confident
	2B Design a spreadsheet that is understandable and attractive	❑ Confident ❑ Basic understanding ❑ Not confident
	2C Use style sheets and automatic functions	❑ Confident ❑ Basic understanding ❑ Not confident
Topic 3 Create a spreadsheet	3A Enter, check and amend data	❑ Confident ❑ Basic understanding ❑ Not confident
	3B Format a spreadsheet	❑ Confident ❑ Basic understanding ❑ Not confident
	3C Use and test formulas and functions	❑ Confident ❑ Basic understanding ❑ Not confident
	3D Overcome problems with spreadsheet design and production	❑ Confident ❑ Basic understanding ❑ Not confident

Topic	Key outcome	Rate your confidence in each section
Topic 4 Produce simple charts	4A Select appropriate chart type and design	❑ Confident ❑ Basic understanding ❑ Not confident
	4B Create charts	❑ Confident ❑ Basic understanding ❑ Not confident
	4C Modify charts and layout	❑ Confident ❑ Basic understanding ❑ Not confident
Topic 5 Finalise spreadsheets	5A Preview, adjust and print spreadsheets	❑ Confident ❑ Basic understanding ❑ Not confident
	5B Meet data input time lines and quality requirements	❑ Confident ❑ Basic understanding ❑ Not confident
	5C Name and store spreadsheets and exit applications safely	❑ Confident ❑ Basic understanding ❑ Not confident

Topic 1
Prepare to use spreadsheets

A spreadsheet is a very useful computer application that makes it easy to carry out repetitive tasks involving numbers. Organisations use spreadsheets to store and calculate numerical data such as financial statements or product pricing information. Setting up a spreadsheet is a simple form of computer programming. Most people in business, or working in an office, will be expected to use and produce spreadsheets.

Once you have created a spreadsheet, you need to format it to make the information it contains easy to understand. When formatting a spreadsheet you may need to ensure the spreadsheet complies with the organisation's style guidelines.

In this topic you will learn how to:

1A Use safe work practices

1B Minimise wastage

1C Identify spreadsheet task requirements

1A Use safe work practices

Workplace safety is everyone's responsibility. Employers and employees must make an active contribution to ensuring their workplace is safe. Hazards need to be identified and risks assessed to reduce injury in the workplace. If you are working at a computer for an extended period each day, your workstation must be comfortable and designed for you to 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 time to stand up and stretch.

Another consideration in the workplace is to use resource conservation techniques to prevent wastage. Most organisations require staff to follow resource-saving procedures such as turning off lights in unused rooms and recycling paper. You need to be aware of any conservation efforts made by your organisation.

Workplace safety legislative requirements

All work health and safety (WHS) legislation requires employers to provide a safe workplace and adequate training and supervision, while controlling workplace hazards and risks. You must work in line with legislative requirements, regulations, Australian and industry standards, and the relevant codes of practice.

WHS legislation describes the legal requirements for ensuring workplaces are safe and healthy, such as:

- managing risks to health and safety
- promoting and maintaining the health, safety and welfare of people at work
- protecting people at work from injury and illness, including psychological injury
- protecting the health and safety of the public in workplaces
- consulting workers and encouraging participation in maintaining WHS
- providing rehabilitation and maximum recovery for injured workers.

WHS policy

All workplaces in Australia are required to have a WHS policy that describes the organisation's responsibility for the health and safety of its employees. The policy should include the organisation's goals and objectives regarding WHS and a general set of guidelines related to health and safety in the workplace.

The WHS policy will help you fulfil your duty of care as a worker for the organisation.

WHS procedures

WHS procedures are instructions developed to ensure all employees work safely and effectively. In the context of working in an office and using a computer workstation, the following information should be contained in an organisation's WHS procedures.

Information contained in WHS procedures includes:

- 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 and first-aid officers.

WHS regulations

The WHS legislation of each state or territory is supported by regulations and codes of practice. The WHS regulations support the legislation by outlining specific workplace health and safety requirements that must be addressed.

The Model WHS regulations, which provide a framework that most states and territories have adopted, have specific requirements for hazardous manual tasks that must be addressed. These requirements are summarised below.

Manage risk

A person conducting a business or undertaking must manage risks to health and safety relating to a musculoskeletal disorder associated with a hazardous manual task, in accordance with guidelines for managing risks to health and safety.

Control measures

In determining the control measures to implement, the person conducting the business or undertaking must have regard to all relevant matters that may contribute to a musculoskeletal disorder, including:

- postures, movements, forces and vibration relating to the hazardous manual task
- the duration and frequency of the hazardous manual task
- workplace environmental conditions that may affect the hazardous manual task or the worker performing it
- the design of the work area
- the layout of the workplace
- the systems of work used
- the nature, size, weight or number of persons, animals or things involved in carrying out the hazardous manual task.

Code of practice: hazardous manual tasks

The WHS regulations determine that it is a legal requirement for the person conducting a business or undertaking (PCBU) and workers to address hazardous manual tasks in the workplace. A PCBU has a broad definition that includes both employers and supervisors.

The code of practice for hazardous manual tasks was developed to provide guidance on how to manage risks associated with those manual tasks with the potential to cause musculoskeletal disorders (MSDs).

A PCBU must consult with workers, so far as it is reasonably practical, to develop their own set of procedures to manage the risk of MSDs.

The hazardous manual tasks code of practice helps PCBUs and workers to:

- identify hazardous manual tasks
- assess the risks
- control the risks
- review the control measures.

Musculoskeletal disorders

MSDs come about 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

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 an MSD.

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 workplace may need 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 exercise routines.

Workers in an office environment follow standard precautions when using a computer workstation. However, 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 will use during the day to make sure they are in correct working order. Your workplace policies and procedures should include the steps to follow. You may need to perform this procedure at the start of your working day or at specified intervals during the day.

Workstation safety procedure/checklist:

- Seat is positioned in front of your computer and you can reach your keyboard comfortably.
- Computer monitor is positioned out of direct sunlight and at the correct height.
- Environment is dust-free as dust can affect the monitor or central processing unit of a computer.
- Cables are secured so no-one trips over them.
- Blinds and window coverings are used to reduce glare and heat at your workstation.
- Temperatures don't exceed 26°C and humidity is between 40 and 60 per cent.

Use ergonomic practices in the workplace

The aim of ergonomics is to reduce the risk of accidents, injury and ill health 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.

Set up your workstation

A workstation includes a computer, screen, keyboard, mouse, desk and chair. How your workstation is designed can affect your health and wellbeing. 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. Below are some guidelines for setting up your workstation to be ergonomically efficient.

Chair

Adjust your chair height so that your feet are flat on the floor, your thighs are horizontal and your lower legs are vertical to the floor.

Adjust the backrest by raising it to the maximum height and then lower it until it fits the curve of your lower back. If this is not comfortable, lower it another couple of centimetres. Continue this until a comfortable position is found. The backrest should support your lower back.

The backrest may also be adjusted backwards and forwards. When seated in your usual working position, move the backrest until it exerts 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 tasks.

Desk

When you sit at your desk, the surface should be just below your 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 to make up the difference. If your desk is too low, you may be able to extend the legs. You should have plenty of leg space underneath your desk. Don't clutter the space with bags and bins, as your legs may become cramped and your posture twisted. Position any equipment or materials you use so that you can reach them easily without twisting. For example, stationery items you frequently use should go in the top desk drawer, and your keyboard and screen should sit directly in front of you to avoid having to angle or twist your body.

Keyboard

The angle of your keyboard can be adjusted to suit your comfort level by moving the supports underneath it. Place the keyboard as close as possible to the front of your desk. Don't place documents between yourself and the keyboard, as stretching will eventually cause muscle strain in your arms, shoulders and neck. 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 or rests give you a place to rest your hands only when pausing from typing, not while you are typing. Do not pound the keys; use a light touch. Leave enough room on your desk to put the keyboard out of the way when you are not using it.

Mouse

Place the mouse and mouse mat 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. Don't hold onto the mouse when you are not using it.

Screen

Once you have adjusted your chair and desk, you can position your screen. Adjust it so that the top of the screen is level with or slightly lower than your eyes. If you can't adjust the screen to the correct height, place the screen on a platform.

The screen should be at least 50 centimetres or an arm's length away from your seated position to minimise radiation exposure; however, you should always adjust the position of the screen to suit you. It is best to position the screen so that you can clearly read the text without leaning forward, twisting your neck, or looking too far upwards. Also take surrounding factors into consideration, such as reflection, glare and shadow, when positioning your screen.

Workstation features

The features of an ergonomic workstation are highlighted in the diagram below. Some features of the workstation may vary depending on the type of computer work being performed. Graphic work may require the use of a pen tool, and multiple monitors are commonly used for a variety of digital work.

Top of screen	The screen angle should be adjustable between 85 and 125 degrees to the horizontal.
Centre of screen	Minimise screen reflection and glare by using an anti-glare filter.
Bottom of screen	Place a document holder beneath or beside the screen at the same viewing distance as the screen.
Top line of sight	The viewing distance should be between 400 mm and 700 mm.
Bottom line of sight	A relaxed viewing angle is approximately 35 degrees.
Head	Keep your head erect.
Shoulder	Have your upper arms hanging freely.
Elbow	Have your forearms approximately horizontal.
Above knee	Ensure there is clearance between the lower edge of the desk and your legs.
Below knee	Ensure there is clearance between the front edge of the seat and the lower leg.
Footrest	Use a footrest if needed.
Back of chair	The back support should be adjusted to support the small of your back.
Under chair	Adjust the seat height to suit your furniture and equipment.
Chair legs	Use a chair with a five castor base.

Desktop layout

Items on your desk, including equipment and resources, should be arranged within 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 – 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. Intermittently used objects, such as your phone, should be out of the way but still within easy reach. Other resources used less frequently, such as in- and out-trays, should be in the outer reach zone.

Adjust your equipment and posture

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 start out very slight, but if you continue to use poor posture they may get worse and become intolerable. They may result in cumulative stress given the constant stress on your muscles, nerves or tendons. When setting up your workstation, you need to 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.

You have already looked at adjusting your screen and chair. There are other office tools that can help your posture. These include the following items.

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 eye focus.

Angle boards

Angle boards allow the user to maintain correct posture when reading, by reducing the angle between the work surface and the vertical posture. Adjustable to a suitable height and angle, these supports 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 can't 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.

Home office

Communication technology and organisational policies to maintain a sustainable work–life balance are creating opportunities for more flexible working arrangements. This means that more employees are working from home offices or in other remote office locations. Many benefits can be derived from flexible working arrangement for employers and employees, but there is still a responsibility for all parties to make sure that home and remote offices use ergonomic practices and follow WHS requirements.

Hot desking

Hot desking is an office organisation system that is used in some workplaces where workstations are not assigned to an individual worker. Workstations may be used by multiple workers during different time periods or shifts.

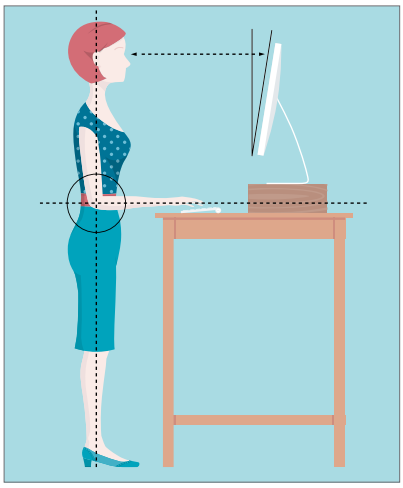
The motivation behind hot desking is primarily the cost savings achieved by setting up fewer workstations in workplaces where not all the workers are in the office at the same time, or not in the office for long periods at a time.

Another common adaptation of hot desking is where work stations are assigned to individual workers, but need to be readily available for other workers to access based on daily work requirements, such as a group of people coming together to work on a specific project.

WHS and workplace culture considerations with hot desking

- It is common for workers to want their own space. Consequently, they may tend to choose one location and stick to it.
- It can take extra time each day to set up a work station for ergonomic and work efficiency.
- Personal hygiene needs to be maintained to prevent the spread of germs on keyboards and desk surfaces.
- Workstations need to be tidied appropriately in readiness for the next user. This can also involve some cleaning.

Standing desks



Sitting at a desk for long periods of time has many negative health impacts. It is claimed that the negative effects of prolonged sitting cannot be counteracted by regular exercise and that the only way to eliminate this problem is to avoid sitting as much as possible.

These negative health impacts can be overcome through the use of standing desks. Standing provides a greater opportunity for your body to move and adjust and involves more muscular activity than sitting.

Some of the health benefits from standing include:

- alleviating back pain and other repetitive stress 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.

Standing desk ergonomics

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

An ergonomically designed standing work desk means you can maintain correct posture while working.

Position arms at 90 degrees when typing/standing.

Place the computer screen at eye-level and tilting it slightly upwards.

Place the computer monitor at least an arm's length away.

Avoid leaning over the desk; keep your body straight.

Monitor environmental factors

Environmental issues in the workplace include lighting, noise control and air quality. If the environment of your workplace is not monitored and controlled, you may suffer from headaches, fatigue, hearing loss or eyestrain.

Light

Good lighting is essential for a safe and hazard-free workplace. You need to see things clearly to work effectively. Simply shifting the screen slightly, adjusting blinds, altering the brightness settings on the screen and using desk lamps can avoid many light hazards. Try to use natural sunlight if the office layout can accommodate this. If not, keep bulbs and fixtures clean, focus light on your task and use fluorescent lights if possible.

Improper lighting can cause eyestrain and headaches.

Hazards associated with lighting include:

- glare – a computer screen positioned in front of a bright window can be difficult to see
- flickering lights – a fluorescent light may malfunction, causing annoyance, irritation and nausea
- inadequate or dim light – reading in dim light causes eyestrain
- reflections – sunlight reflecting on a screen can make it difficult to read
- shadows – shadows shifting across your work area can cause you to sit with bad posture in order to read your work.

Noise

Noise can include any annoying or disturbing sound. Excessive noise around heavy machinery or equipment can cause permanent hearing loss. Noise is a problem if it disturbs people, distracts them, interferes with communication, causes people stress or generally interferes with their work.

Many offices are open-plan in design, often with employees seated close to each other and divided by partitions at chest or head height. Think about noise levels when you set up your workstation. It should be possible for people in open-plan offices to have some privacy when they are on the telephone and carrying out their day-to-day activities.

Noise in the office can come from:

- machines (photocopiers, fax machines, printers)
- other equipment (telephones, paging systems, music)
- background noise (lifts, air-conditioning, traffic)
- people talking.

Noise management

Noise can also be a problem outside office environments, such as on factory floors, at construction sites or near airports. You may have to wear ear protection if you are required to work in excessively noisy areas.

There are many ways that problem noise can be controlled in the workplace. Noisy machines can be put in a separate room or area. Sound-absorbent materials such as carpet and partitions can be installed or arranged to deflect and absorb noise. The volume level on your telephone's speaker can be adjusted.

Remember that noise is only a hazard when it is stopping you from working productively, comfortably and safely. Many people prefer to work with low levels of noise rather than complete silence.

Air

Air-conditioned offices do not have fresh air from open windows. This can cause problems for some people.

Office workers frequently complain of being too hot or too cold. If a person's desk is near an air-conditioning outlet, the area around their desk can be much colder than elsewhere in the office. They can also suffer from dry and itchy eyes. Report such hazards to the relevant person. This situation can usually be corrected by adjusting air-conditioning flow.

Organise your work

Having a well-planned workstation and comfortable surroundings is pointless if you don't organise your work in a way that prevents discomfort or pain. Make sure you plan your daily tasks so that you aren't doing repetitive work for long periods of time. Make sure you take rest breaks and exercise regularly.

Positive work organisation includes:

- a mixture of repetitive and other activities
- rest periods
- exercise breaks.

Vary your activities

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 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 fellow worker, collecting some research from the internet or doing another constructive workplace task you are responsible for. Workflow should be designed to reduce the repetitive tasks given to particular people.

Take rest periods

All employers need to provide rest periods for employees. Rest periods include tea breaks and lunch breaks. During the working day everyone needs to sit down, breathe easily, relax and take time to think about something other than work.

Have exercise breaks

When working with a computer, you should have short breaks at regular intervals to combat stress and prevent pain and discomfort. As discussed previously, 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 others around you to try them. 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 palms upwards. Now lift 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 hands in the small of the back. Gently arch 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).

Work without stress

Here are some tips for working without stress.

Tips to help minimise stress
• Adjust your chair and desk to suit your body. • Position your screen to suit your posture. • Adjust other equipment for safe and comfortable use. • Reduce excess noise. • Ensure you have adequate light. • Arrange your desktop so you can access things easily. • Take regular breaks from your work. • Frequently rest your eyes. • Do stretching exercises. • Vary your tasks.

Practice task 1

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 or study space. You may need another person to help you and check your posture. If you are not able to tick some of the checkpoints, change your study space or 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 over 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 underneath it?
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?
Screen
❑ Does the screen have easily adjustable brightness and contrast controls?
❑ Is the image on the screen stable and flicker-free?
❑ Are there adjustment mechanisms to allow the screen 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?

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

3. What should a WHS policy include?

4. What should WHS procedures include?

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

1B Minimise wastage

Practise conservation techniques

Conserving resources at work benefits not only the organisation by reducing costs, but also 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 asking your manager or colleagues.

Ways to conserve resources at work include:

- minimising paper wastage
- reducing energy use.

Minimise paper wastage

Wasting paper costs organisations and the planet a great deal. Consequently, many organisations have developed policies for paper usage. These include:

- using both sides of the paper when photocopying
- recycling non-confidential waste paper in recycling bins
- storing email messages in an electronic folder instead of printing
- reducing the volume of printing where possible
- reusing paper by using blank sides for rough drafts and reusing folders and files
- using recycled paper or paper from plantation timber for printed documents
- using a recycling service to collect waste paper.

Example: office paper

Using the following statistics, consider how many trees are used for office paper.

How many trees are used to produce paper?

- One ton of uncoated virgin (non-recycled) printing and office paper uses 24 trees.
- One ton of 100 per cent virgin (non-recycled) newsprint uses 12 trees.
- One ream (500 sheets) of paper uses six per cent of a tree.
- One tree makes 16.67 reams of copy paper, or 8,335 sheets.
- One carton (10 reams) of 100 per cent virgin copier paper uses 60 per cent of a tree.
- One ton of coated, non-recycled higher-end magazine paper (used for high quality photographic magazines) uses more than 15 trees.
- One ton of coated, non-recycled lower-end magazine paper (used for news magazines and most catalogues) uses nearly eight trees.

The statistics in this example are based on US short tons (2,000 pounds), not metric tonnes.

Source: www.conservatree.com

Minimise energy use

Wasting energy also costs organisations and the planet a great deal. Many organisations have developed policies and procedures to save energy. These include:

- providing training programs on smart energy practices so that employees can practise energy efficiency
- turning off equipment when not in use
- using power-save functions for equipment
- refilling toner and ink cartridges from printers.

Resource conservation

Here are some tips for practising conservation.

Resource conservation tips
• Use the power-save function on printers when they are not in use. • Print and copy on both sides of the page, where possible. • Use recycled paper (paper used on one side) in the photocopier and printer for rough drafts. • Use recycled paper for telephone messages. • Place a recycling bin near the photocopier.

Practice task 2

Look at the following statements and decide whether you think they are true or false.

1. Screen savers save energy.

2. Turning off computers crashes the hard drive.

3. Refilled toner or ink cartridges leak everywhere and make an incredible mess.

4. Putting computers into sleep mode when they are inactive saves energy.

5. Printing and filing all documents in hard copy does not put a high demand on resource consumption.

1C Identify spreadsheet task requirements

Nearly every organisation today uses computers, hence it is highly likely your work will require you to be familiar with several computer applications, including programs for creating spreadsheets. Organisations use spreadsheets to store and calculate numerical data, which can then be used to produce such things as charts, graphs, statements and reports.

Many organisations have specific requirements about how data is stored and the way it is displayed and presented. 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.

You also need to know 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 yourself and your colleagues.

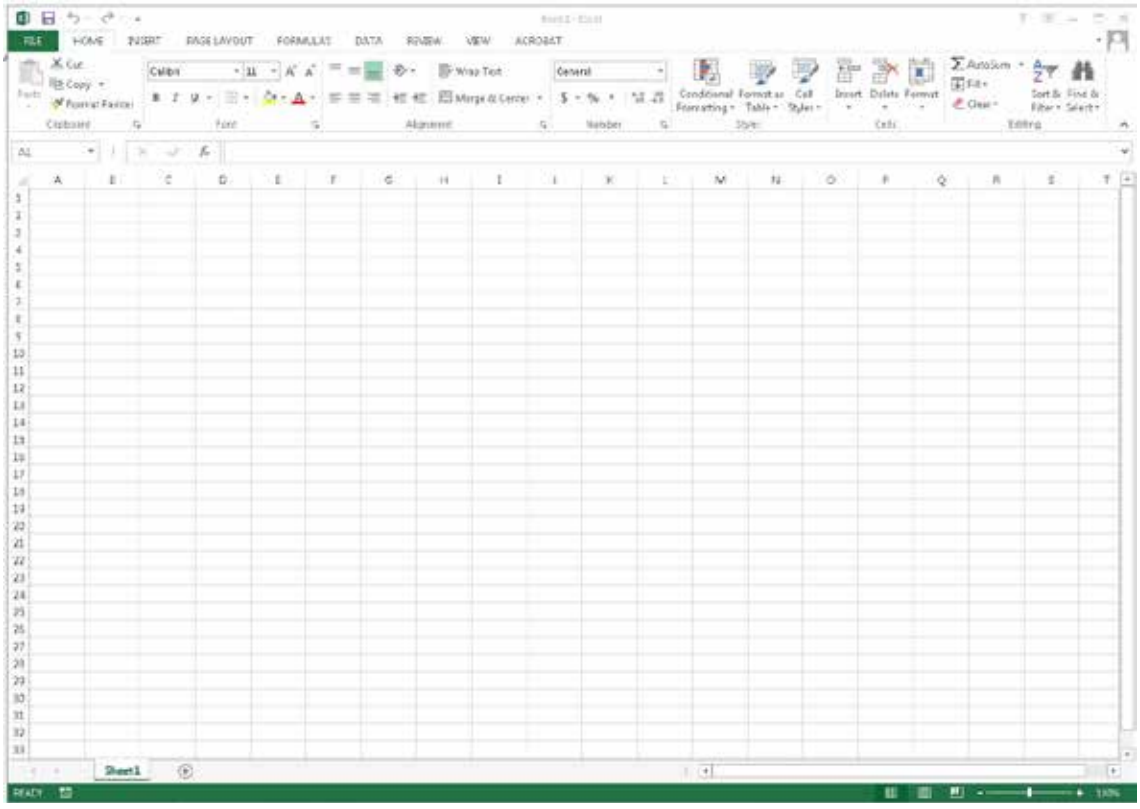
Microsoft Excel is a very common spreadsheet application. The examples in this learner guide are based on Excel 2013. Earlier versions will be similar in how they work, although there may be some differences in the appearance of the screens.

Spreadsheet layout

Before you start entering data you should be familiar with the layout of a spreadsheet.

A spreadsheet is a grid of columns and rows. It has numbers down the side and capital letters across the top. There are other items located above and below the grid. You will use these in every spreadsheet you create so it is important you understand what they are and how to use them. The items include:

- Spreadsheet work area
- Title bar
- Ribbon
- The Formula Bar
- The active sheet



Spreadsheet work area

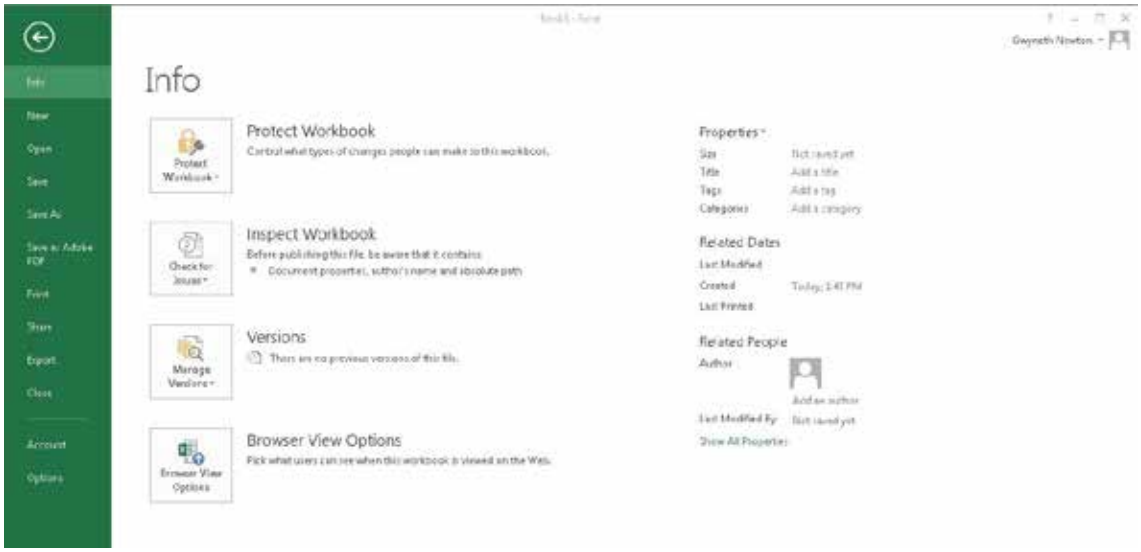
A spreadsheet is called a worksheet. Multiple spreadsheets are called a workbook. A spreadsheet is divided into **columns** and **rows**. The intersection of each column and row is called a **cell**. The current cell is shown by a highlighted rectangle. This is the cell that data can be entered into. To move to another cell, click into the required cell. Each cell has a name. The name is simply the letter above the cell and the number to its left. The cell name is called a cell reference, like a grid reference on a map.

Title bar

The title bar holds the name of the workbook. It has the standard minimise, restore and close functions of most applications.

Ribbon

Common commands are organised into a series of tabs in what is referred to as the Ribbon. The File tab helps users find features related to document handling such as saving, sharing, protecting, printing and sending a document.



For each tab, there are groupings of tools; for example, under the **Home** tab the groupings are:

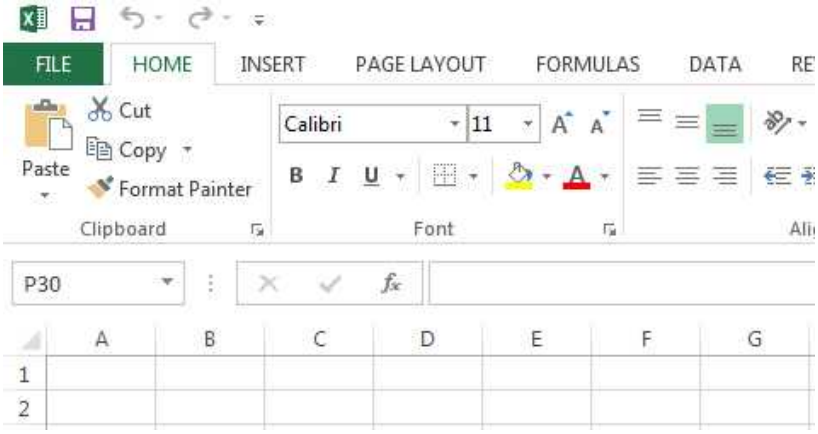
- Clipboard
- Font
- Alignment
- Number
- Styles
- Cells
- Editing

You need to familiarise yourself with the various tools available in Excel 2013. The most common tabs used are Home, Insert, Page Layout and View.

To learn about the various tools, rest your mouse pointer on the button. A help bubble appears that briefly describes the purpose of the tool.

The formula bar

The formula bar displays the current cell reference you are working in. As you become more experienced with spreadsheets, you will use the formula bar to make calculations.



The active worksheet

The active worksheet information is located in the bottom left-hand corner of the spreadsheet. By default, each new workbook contains three blank worksheets. It is possible to add or delete worksheets.

If you wish to rename your active worksheet:

- double-click on the relevant sheet tab 

- type in the new name. 

Enter data into a worksheet

Spreadsheets have been designed to enable you to enter two main types of data – numbers and text. Later on we will also see how to enter formulas.

Examples of the types of data that may be entered into a worksheet include sales figures, sales projections, market share, budget figures, questionnaire results or text information. Regardless of the type of data entered, it will need to be formatted in a meaningful and useful way. When formatting data to create a report or presentation, it is important to ensure that the end product is clear and easy to use.

Most organisations will have set standards for the way they want spreadsheets produced, including font, font size, worksheet names and colour use. When producing spreadsheets you should seek advice and clarify requirements from supervisors and colleagues to ensure you are complying with organisational standards and designs.

Example: enter data into a worksheet

The following example shows how to enter information into a spreadsheet. The data you will be checking represents the monthly income and expenses of Amy's Booksellers for a year.

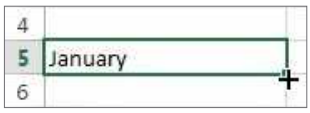
	A	B	C	D	E
1					
2			Amy's Booksellers		
3					
4	Month	Income	Expenses	Profit	Clear Profit
5	January	5332	1232		
6	February	5322	1231		
7	March	6433	435		
8	April	5432	2123		
9	May	2424	522		
10	June	2341	233		
11	July	6322	234		
12	August	7234	242		
13	September	5223	452		
14	October	4223	234		
15	November	9642	522		
16	December	10462	432		
17					
18	Totals	70390	7892		

1. Open Microsoft Excel 2013.
2. Click into cell C2 and enter the text **Amy's Booksellers**.
3. Click into cell A4 and enter the text **Month**.
4. Click into cell B4 and enter text **Income**.

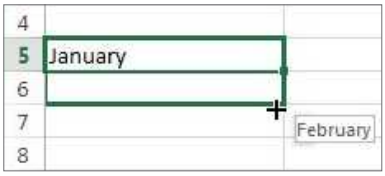
continued ...

... continued

5. Repeat this process across the row and enter the text **Expenses**, **Profit** and **Clear Profit** into their own cells (see illustration to guide you).
6. Click into cell A5 and enter text **January**.



7. You can enter the names for the rest of the months in two ways. Type each month into its own cell as shown or you can use the Fill function.
8. To use Fill, move the cursor over the little square in the bottom right-hand corner of the cell with January in it. The cursor will form the shape of a small black cross.
9. While pressing the left mouse button, drag the small black cross (Fill handle) down. You will begin to see the names of other months appearing. Keep dragging until you reach the cell that says December.
10. Release the button and Excel will automatically fill in the months for you.



5	January
6	February
7	March
8	April
9	May
10	June
11	July
12	August
13	September
14	October
15	November
16	December

11. Enter the values as displayed in the example under the relevant headings **Income** and **Expenses**.
12. Save your worksheet in a suitable location on your hard drive and name it **Amy's Booksellers**.

	A	B	C	D	E
1					
2			Amy's Booksellers		
3					
4	Month	Income	Expenses	Profit	Clear Profit
5	January	5332	1232		
6	February	5322	1231		
7	March	6433	435		
8	April	5432	2123		
9	May	2424	522		
10	June	2341	233		
11	July	6322	234		
12	August	7234	242		
13	September	5223	452		
14	October	4223	234		
15	November	9642	522		
16	December	10462	432		
17					
18	Totals	70390	7892		

13. Select one of the numbers you have entered in the Income column. Click into the cell and re-type the new number.
14. Save your changes and close your worksheet.

Make changes to data

At some stage you will need to alter the data you have entered into a spreadsheet. You may have typed it in wrongly or you may have new, more up-to-date figures to use.

Example: make changes to data

The following example shows one way to make changes to data.

1. Click into the cell where the change is required.

Month	Income	Expenses
January	5332	1232
February	5322	1231

2. Re-type the data as required.

Month	Income	Expenses
January	4556	1232

3. Click outside the cell. The changes have been made.
4. Save the worksheet to save the changes.

Select multiple cells, columns or rows

You will often need to select more than one cell at a time. The following information outlines several techniques for selecting areas of a spreadsheet.

5	January	4556	1232
6	February	5322	1231
7	March	6433	435
8	April	5432	2123
9	May	2424	522
10	June	2341	233
11	July	6322	234

Select a group of cells by dragging the mouse

Click on the first cell in the range you want to select. Hold down the left mouse button and drag over the required cells. To select a single cell, click into the cell. Selected cells are highlighted.

5	January	4556	1232
6	February	5322	1231
7	March	6433	435
8	April	5432	2123
9	May	2424	522

Select a row

Click on the row number button. This will highlight the whole row.

	A	B	C
1	Month	Income	Expenses
2	January	4556	1232
3	February	5322	1231
4	March	6433	435
5	April	5432	2123
6	May	2424	522
7	June	2341	233

Select a column

Click on the column letter button. This will highlight the whole column.

	A	B	C
1	Month	Income	Expenses
2	January	4556	1232
3	February	5322	1231
4	March	6433	435
5	April	5432	2123
6	May	2424	522
7	June	2341	233
8	July	6322	234

Select the entire worksheet

Click on the cell in the top left-hand corner of the worksheet to the left of column A. Alternatively, on the keyboard press Ctrl+A together. This will select the whole worksheet.

5	January	4556	1232
6	February	5322	1231
7	March	6433	435
8	April	5432	2123
9	May	2424	522
10	June	2341	233
11	July	6322	234
12	August	7234	242
13	September	5223	452

Select multiple ranges

Select cells using any of the above methods and then hold down the Ctrl key while selecting the second (or more) range of cells.

Presentation

You want your spreadsheets to be clear and easy to understand and to conform to any requirements of your organisation. Many organisations use templates to make it easy to produce standard layouts. The templates may already have standard worksheet formatting such as shading, font formatting, headers and footers, logos, column and row headings and predefined formulas.

You may just have to enter the data or alter only parts of the layout. A consistent layout for documents boosts the image and reputation of the business.

You may be given guidelines or specific instructions on how to produce spreadsheets for particular purposes. If you are, it's important to follow them. Clarify instructions if needed and ask questions if you are not sure what to do. If you have your own ideas about how the content or format of a document could be improved, speak to your supervisor.

Storage

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 is a computer, linked by a network to other computers, which stores information so other people can use it.

Ask your manager where you should save your spreadsheet so it can be used by whoever might need it.

Folders are a good way to store common documents – as long as you have a meaningful naming system for them. Computer folders are similar to those in a manual filing cabinet. To retrieve a document, you need to know which filing cabinet and drawer, and which folder or index it is stored in. Folders should have meaningful names such as product numbers – PN134, client numbers – Smith3422, and project titles – Newtech Project. The naming of spreadsheets is also important for future retrieval. The names need to be meaningful. Examples of meaningful spreadsheet names include 2010-QTR1 Sales Report, Smith3422 Jan 10 Client Report. Using names such as Spreadsheet1 or Sales Report1 does not make it easy later on when you need to find a particular spreadsheet.

File compatibility

In Microsoft Excel 2013, when a spreadsheet is saved it has the file extension .xlsx. Previous versions of Excel have the file extension .xls. The file extension tells the computer system what type of file it is and what program to use with that file.

If you are creating a spreadsheet that needs to be used by people with an older version of Excel, you will need to save the file in compatibility mode. To create a spreadsheet in compatibility mode, select the File tab, select Save As, and select Excel 97-2003 Workbook in the Save as type list.

Ensure you have selected an appropriate drive and folder for saving; then in the file name box type a meaningful name for your spreadsheet, and click Save. You should do this when you start creating a new spreadsheet.

Output

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?

Practice task 3

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.

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

2. Decide on names for the two new columns.

3. How does Josh have to format the data?

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

continued ...

... continued

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. Phuong is not sure how to go about finding out the information to include in the report – does it mean that she has to go out and visit all the small businesses?

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 in the folder 2014-Small Business. However, her supervisor is not sure of the spreadsheet name so she will need to have 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 managers' 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 is to look. She also knows her deadline, the reason for the production of the report and how many copies are required. What Phuong doesn't know is where to get the current data for entry into the spreadsheet. She goes back to her supervisor to check. The data is contained in another report that was produced by her co-worker last month. That report contains information about all the types of businesses in the area (small, medium, large), as well as projections of potential businesses in the area. Her supervisor tells her to see Ingrid to check the file location and name. Phuong speaks to Ingrid to get the location of the report. Phuong is now able to use this report as her source document for creating the report that she has been asked to complete.

continued ...

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5. What is Phuong's task?

6. What does Phuong do to clarify task requirements?

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

Summary

1. Make sure your workstation and working conditions are safe and healthy so you can work comfortably and productively.
2. Organise your work area and your working day to ensure that you enhance and promote a healthy and safe work environment.
3. Practise conservation techniques to try to minimise paper wastage and energy use.
4. When producing a spreadsheet, check requirements for data entry, presentation, output methods and quantity. This ensures the final product meets organisational and task standards.
5. Store spreadsheets in locations that can be accessed by those who need to use them in the future. Ensure that spreadsheet names are meaningful so you can easily locate the information at a later date.

Learning checkpoint 1
Prepare to use spreadsheets

This learning checkpoint allows you to review your skills and knowledge in preparing to use spreadsheets.

Part A

All staff have been asked to submit their ideas on promoting a healthy and safe work environment within the workplace.

1. Write your ideas on how you or your colleagues could improve work practices in terms of:
   - workstation design and layout
   - using adjustable, ergonomic equipment
   - ensuring good posture and work habits
   - identifying and reporting potential workplace hazards and risks
   - saving energy and other resources.

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:
   - The purpose of the spreadsheet
   - The audience for the spreadsheet
   - The data source used for data entry
   - The information to be reported in the spreadsheet
   - The number of copies of the spreadsheet required
   - Where to store the spreadsheet
   - How to name the spreadsheet

2. State four possible organisational requirements that Selda needs to consider when preparing the spreadsheet.

3. How would Selda be able to find out the presentation requirements for the spreadsheet?

Topic 2
Design a spreadsheet

Designing a spreadsheet means knowing exactly what you need to do, and how to do it, before you start building the spreadsheet. This planning helps make sure that you don't waste time producing a spreadsheet that doesn't work properly, is hard to use or doesn't give the information that people need.

You may be able to use predefined spreadsheets and automatic functions to save time and to make sure your spreadsheets comply with the standards of your organisation. They make the task of creating and formatting a spreadsheet easier – saving time and reducing errors.

In this topic you will learn how to:

2A Design a spreadsheet to suit the purpose and requirements of the task

2B Design a spreadsheet that is understandable and attractive

2C Use style sheets and automatic functions

2A Design a spreadsheet to suit the purpose and requirements of the task

When producing a spreadsheet you should be guided by the requirements of your organisation. It is always important to clarify instructions so you are clear about what is needed. If you have your own ideas about how the content or format of a spreadsheet could be improved, speak to your supervisor.

Steps in designing a spreadsheet

Here are some points to consider when you set about designing a spreadsheet. We will look at these steps in more detail in the following pages.

Steps in designing a spreadsheet
Appropriateness to required task
Headers and footers
Analysis
Headings
Formulas
Restricting access to parts of the spreadsheet
Functions
Importing and exporting data
Charts
Macros
Formatting
Multi-page documents

Appropriateness to required task

Spreadsheets are used to analyse figures and present them in a way that is easy for people to understand. Always ensure the spreadsheet does what is needed.

It should be easy for people to put data into the spreadsheet, as well as to understand what comes out of it.

There are five main things you need to know before you start planning, or designing, your spreadsheet:

- The purpose of the spreadsheet
- Who will use the spreadsheet
- The type of information that needs to go into the spreadsheet (the inputs)
- The information that the spreadsheet needs to produce (the outputs)
- What the spreadsheet has to do with the inputs in order to produce the outputs (the processing)

Analysis

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

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

You need to know how to get the spreadsheet to do these things by putting formulas and functions into cells in a way it can process.

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

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 and not something else.

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 /

Enter a formula

If you want to add two numbers, follow these steps:

1. Enter one number into a cell, say A1.
2. Enter the other number into a cell, say A2.
3. Type a formula into another cell. For this example, type =A1+A2 into cell A3. (If the = is not present, Excel will not recognise the entry as a formula, rather it will assume that it is simply a text entry.)
4. When the formula is typed, press Enter. The answer to the calculation will be displayed in cell A3.

The formula takes the numbers stored in cells A1 and A2 and adds them. The answer is put in the same cell where you entered the formula.

If new numbers are typed in A1 and A2, notice that cell A3 now displays the new answer automatically when Enter or an arrow key is pressed. You don't have to type the formula all over again. It simply stays there, processes the data from A1 and A2 and records the result in A3.

This is what using spreadsheets is all about. You don't have to repeat the same calculations over and over each time you get new data, as long as you use the cell references of the cells containing the data that your formulas and functions will use and not the actual numbers in the cells.

Functions

A function is a formula that is built into the 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, with examples, are shown in the following.

=SUM(range)

Adds the numbers in the cells that are within the range specified in the brackets.

Example: provides a total of all assessments the student has completed.

=SUM(B5:E5)

=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.

=MAX(F5:F7)

=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.

=MIN(F5:F7)

=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.

=AVERAGE(F5:F7)

=COUNT(range)

Counts the number of items in the range.

Example: counts the number of results entered for the class.

=COUNT(F5:F7)

Charts

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' would be good to show what percentage of total sales each of several models of cars contributes. To show how the temperature in a coolroom varies over several weeks, a 'line chart' or 'scatter chart' would be best. By using charts, you save people the trouble of having to look at lots of figures.

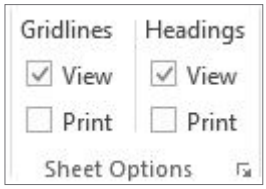
Format

Formatting a spreadsheet means to present the information in the most understandable way. You can do things like highlight important text and numbers using bold or italic, or underlining or shading. The choices are very similar to those available in word processing programs. 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; for instance, in currency format, as decimals with a particular number of decimal places, or in date format.

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, the footer is at the bottom. Headers and footers are automatically repeated onto all pages of the spreadsheet report. Headers and footers might include the company name and logo, name of report, creation date of report and file reference information.

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.

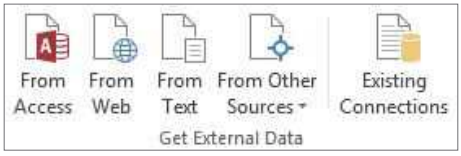
Displaying or printing headings is useful when you are checking that information has been accurately entered, particularly when checking for errors with formulas or functions.

Restrict access to parts of the spreadsheet

It is possible to limit the sort of data, and the range of data, that can be entered into a spreadsheet; for instance, only putting numbers in and not letters. An unprotected spreadsheet has many places where someone could enter data in the wrong place, or change a formula and ruin the spreadsheet. You can put restrictions on what parts of the spreadsheet people can change.

Import and export data

You may want to bring data into your spreadsheet from another application such as Microsoft Access. This is called importing data. The following tools, located in the Data tab under the **Get External Data** grouping, are used to import data.



You would need to import data if the information you require is stored in a customer database. You may need to import customers' contact details, for example.

Exporting Excel 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.

Macros

Macros make it easy to do common tasks; for example, if you regularly insert the company logo into your spreadsheet, instead of going through all the steps to insert the logo, you can design a macro with a short-cut keyboard command. Then all you have to do is use the keyboard command and your logo is automatically inserted. Macros can also be assigned to graphics within an Excel spreadsheet.

Multi-page documents

If the report from your spreadsheet is longer than one page, you need to ensure you have designed the spreadsheet so the information can be understood regardless of which page your audience is reading.

Practice task 4

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 has asked 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 colours, font type and size and the department 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.

1. Who is the audience for the spreadsheet?

2. What is the purpose of the spreadsheet?

3. What are the information requirements?

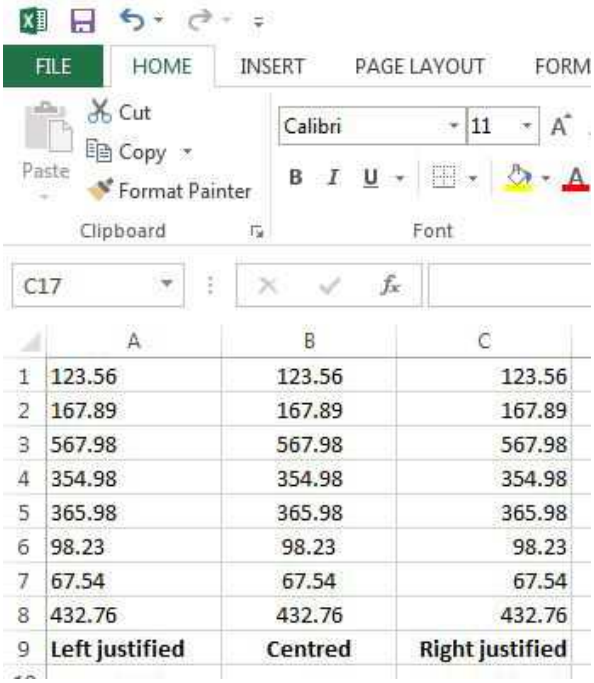
4. What are the elements of spreadsheet design that Helen needs to consider?

2B Design a spreadsheet that is understandable and attractive

The spreadsheet should clearly highlight key information by using titles for columns and rows, and formatting such as shading, borders and font style.

Important information, such as the results, should not get lost among other things (such as the data that has been entered).

Numbers and text should be aligned within cells in the way that is easiest to read.



	A	B	C
1	123.56	123.56	123.56
2	167.89	167.89	167.89
3	567.98	567.98	567.98
4	354.98	354.98	354.98
5	365.98	365.98	365.98
6	98.23	98.23	98.23
7	67.54	67.54	67.54
8	432.76	432.76	432.76
9	**Left justified**	**Centred**	**Right justified**

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 font formatting, headers and footers, logos, formulas and functions, and the title text of the spreadsheet already there. It may just be a case of entering names, addresses or summary figures, or altering only parts of the content. 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. Your organisation may have a template set up with all the required row and column titles and shading, font type and size and so on, and you will only need to input the required figures.

Improve presentation

In Microsoft Excel 2013, there is an option to apply cell styles to the spreadsheet. These are predefined styles available for your use. Styles relate to font type, font formatting, number formatting, borders and shading. It is as simple as selecting 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 use of styles will add to the appearance and overall presentation of the information.

The following example shows how style choices can be used to improve presentation. The spreadsheet titles are formatted, and 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

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

continued ...

... continued

1. What are the differences between the two examples?

2. Which one is easier to read? Why?

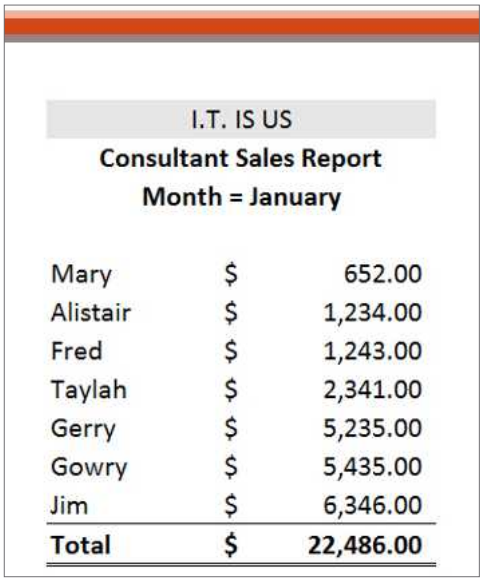
2C Use style sheets and automatic functions

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.

Several automatic functions may also be used for designing spreadsheets. Automatic functions make it easy to create a spreadsheet that is professional and easy to read.

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 is going to appear with others in the same document or presentation. This consistency improves your professional image and that of the organisation as a whole. For example, a covering letter that accompanies a report should be consistent in appearance with the report itself. The following example illustrates a word processing document and a spreadsheet with a consistent appearance.



I.T. IS US

Consultant Sales Report

Month = January

Mary	$	652.00
Alistair	$	1,234.00
Fred	$	1,243.00
Taylah	$	2,341.00
Gerry	$	5,235.00
Gowry	$	5,435.00
Jim	$	6,346.00
Total	**$**	**22,486.00**

Jim Davidson
Human Resource Manager
I.T. IS US

Dear Jim,

MONTHLY PERFORMANCE RESULTS

I am pleased to provide you with a copy of the summary report of consultant sales results for the month of January.

All of our consultants are achieving their targets, and as such are entitled to the monthly bonus of $500. It would be appreciated if you would take the appropriate action to ensure that this is incorporated into the next pay cycle.

Regards

Henry Johnson
Sales Manager

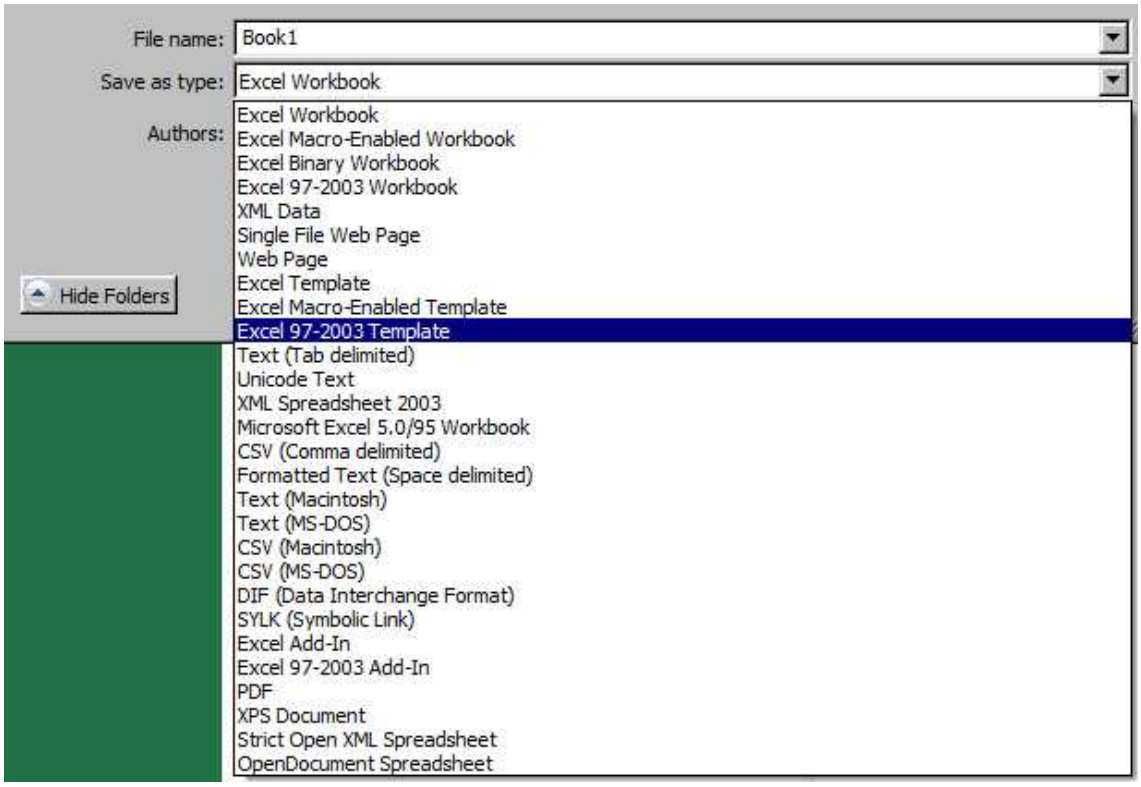
Style sheets

A style sheet is a predefined spreadsheet that is used as a template. A template can be accessed by selecting New from the File tab.

You can create a template from a blank spreadsheet. A template allows you to create a structure for other spreadsheets using common data and formatting options.

1. To do this, firstly create the spreadsheet component or structure you want to use.
2. Select the File tab and select Save As.
3. Give the template an appropriate name, and in the 'Save as type' option choose 'Excel Template'.

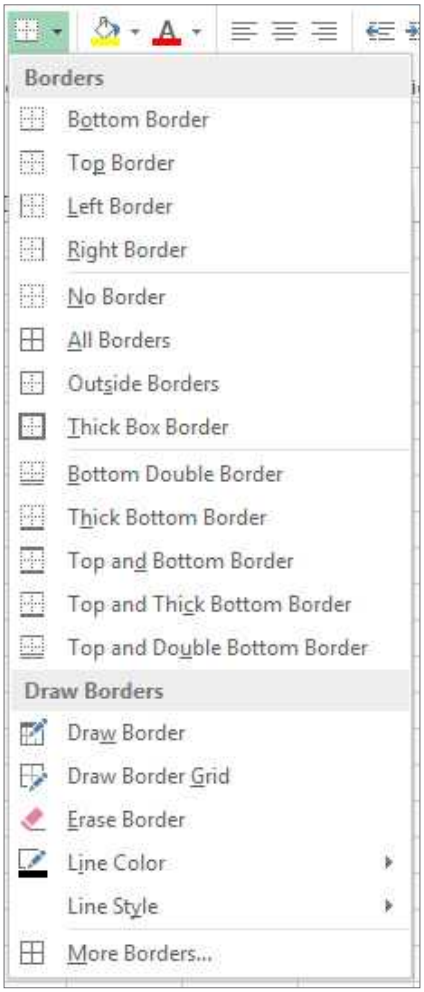
If you are working in Excel 2013 and the template is to be used by people who have a different version of Excel, you need to choose the option Excel 97-2003 template.



Borders

Borders are lines applied around a cell or cells. Borders are used to keep certain information separate from other parts of the spreadsheet or to highlight the information.

1. To add a border, select the area where you want the border to apply.
2. From the Ribbon choose the Home tab and select the appropriate Border tool from the selection list.

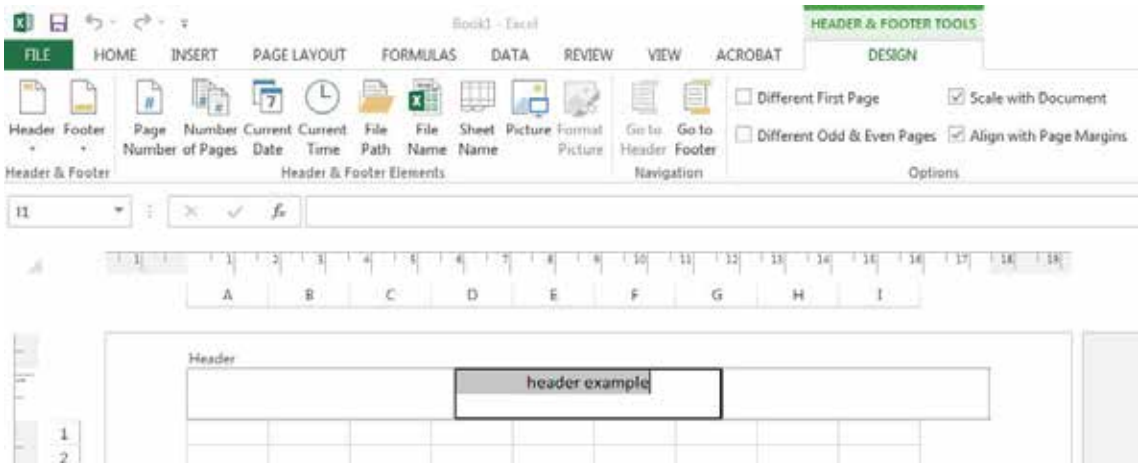


Headers, footers and page numbers

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

Page numbering is commonly used in either the header or footer of the spreadsheet to show the number of pages of a spreadsheet, as well as the current page that 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, then you need to manually type in 'of' as this is not automated.

Alignment

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 within a cell, select the cell or cells and choose the appropriate alignment tool from the Home tab.

Horizontal alignment options include left, centred or right.

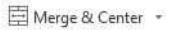
Alignment of data within a cell can also be adjusted for the height of the cell. The automatic default is to align the text to the bottom of the cell. To adjust the vertical alignment of data within a cell, simply select the cell or cells and choose the appropriate alignment tool from the Home tab. Data can be aligned to the top, centre or bottom of the cell. Text can also be oriented to be on an angle.

Merge & Center tool

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. 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 are selected, and then the Merge & Center tool is selected. 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.

When using Merge & Center, the data to be merged across the cells must be in the first cell selected.

Typeface styles and point size

Many organisations have standard requirements for font type and size. To adjust the font type and size, select the cell to be changed and make your selection using the Font tool and Font Size tool as shown below.

Automatic functions

Excel 2013 provides a number of automatic functions to quickly perform common tasks.

Some functions to preform common tasks include:

- Date & Time
- AutoText
- Proofing
- Default settings
- AutoCorrect
- Styles
- Table headings

Date & Time

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

To insert the time, press ctrl+shift+;

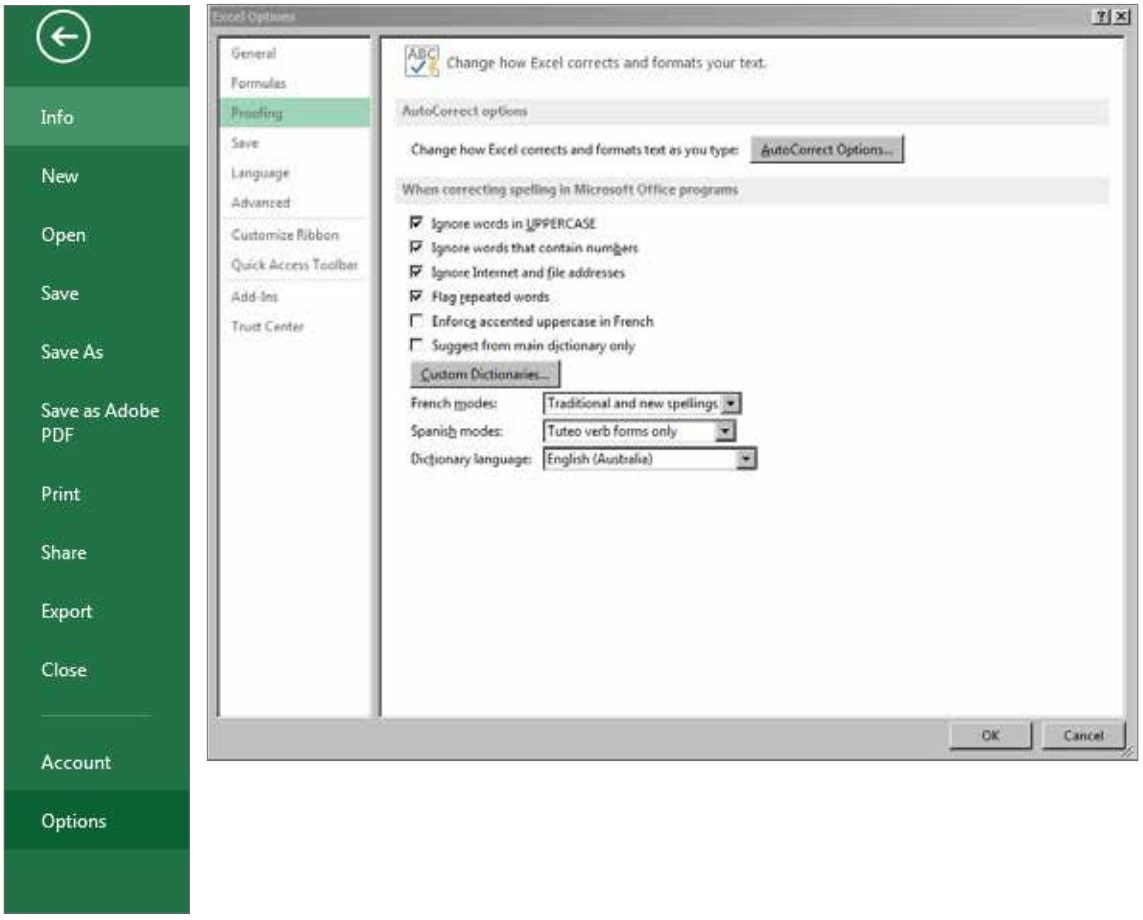
To automatically put the current date in a cell within the worksheet, you can use the TODAY function:

=TODAY()

Being an automated entry, it should be noted that as the date changes, this will be automatically updated to the current date.

Proofing

Proofing automates the proofreading process so common errors or entries are easier to detect. The Proofing feature can be customised by clicking the File tab, choosing Options and selecting Proofing.

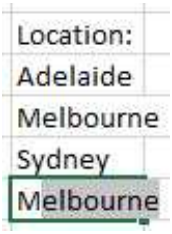


AutoCorrect

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'. In most cases, you don't even notice you have made the typing error. It is a handy feature, but only works for common words. You can customise the list of words you want AutoCorrect to fix.

AutoText

AutoText is a facility that completes text as you type. 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:

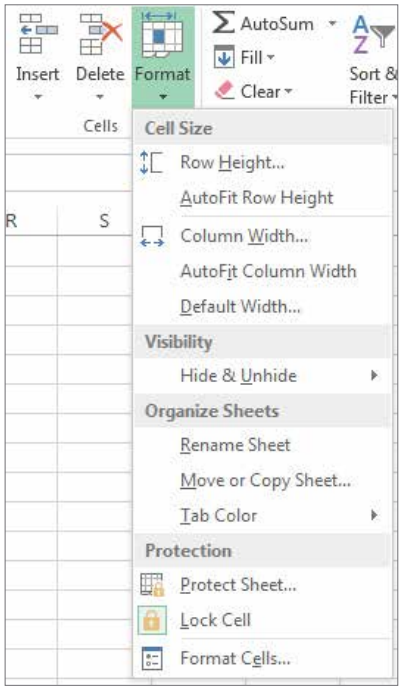


In this example, notice that when Melbourne is being typed again, as soon as 'M' is typed, it automatically completes the text. It is then only necessary for you to press enter to accept it. If it is another entry that you are completing – such as Malvern – just continue typing.

Default settings

Default settings are the original settings of the spreadsheet. People sometimes refer to the default settings as cell entries with no style applied; however, it is a style called Normal. 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, go to the Styles group, click on **Cell Styles**, then select **Normal** Normal.

Default settings also relate to column width. The standard width of the column is 8.43 characters. If you have adjusted the column width and want to return to the default setting, select the column you want to adjust, and from the Home tab, go to the Cells grouping. A drop-down menu under the Format icon will allow you to adjust the width to the default.



Styles

In Microsoft Excel 2013, it is possible to use styles to format individual or groups of cells. To do this, select the cells to be formatted by clicking and dragging to highlight them. To format using styles, from the Home tab go to the **Styles** group, then select Cell Styles and click on your choice.

Styles apply formatting such as colour, borders, font type and size to the cell.

Table headings

In Excel 2013, it is possible to convert your data into a table. 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.

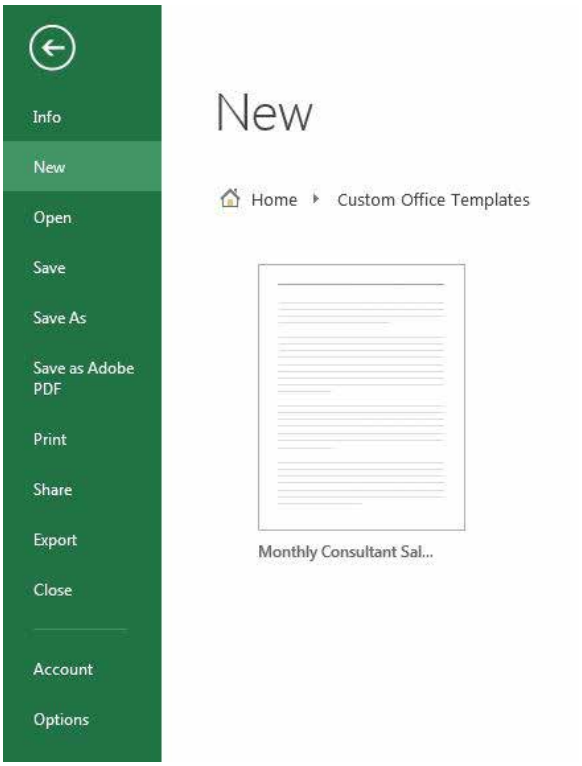
To convert data to a table, select the cells by clicking and dragging to highlight them, and then from the Insert tab, select Table.

Practice task 6

1. Create the following spreadsheet and save it as a template named **Monthly Consultant Sales Report**.

Consultant Sales Report			
Month=			
Andrew			
Gary			
George			
Lisa			
Mary			
Taylor			

Practice using the template. Select the **File** tab, choose **New**, and select **My Templates**. The Monthly Consultant Sales Report template should be available for your use, as below.



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

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

continued ...

... continued

2. 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

From the **Insert** tab, select the **Header & Footer**. Insert the current date and current time into the footer. This will now be part of the spreadsheet.

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.

3. Using the following information, create a spreadsheet that meets the following requirements:

Font – Arial 14, bold and italic

Titles – shade background in yellow

Border – thick outline

The information is to be used by the financial analyst at a meeting to discuss profit levels. 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

continued ...

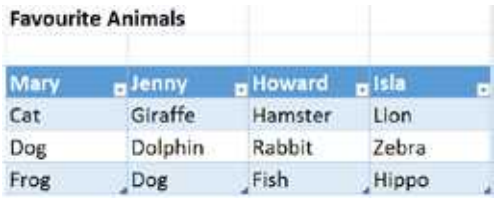
... continued

4. Practise using AutoText with the following spreadsheet entries.

SOCIAL CLUB RAFFLE WINNERS	
1st prize	Mary Johansen
2nd prize	Helga Smithe
3rd prize	Gilbert Goshwig
4th prize	Mary Johansen
5th prize	Mary Johansen
6th prize	Mary Sinclaire
7th prize	Gilbert Goshwig
8th prize	Gilly Green
9th prize	Helga Smithe
10th prize	Helen Wilson

   Save the file in an appropriate location with the name **Name list**. Practise applying different styles to the data.

5. 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

Summary

1. Spreadsheets are used to analyse data and present the results in a clear and understandable way.
2. When designing a spreadsheet you need to know its purpose, who will use it and the inputs, processing and outputs required.
3. The design of the spreadsheet should meet the needs of the person requesting it, as well as organisational expectations and standards.
4. You can use formatting, charts and other graphics to improve the readability and overall presentation of the spreadsheet.
5. Formulas and functions simplify the processing of data.
6. Automatic features can be used to save time and reduce errors.

Learning checkpoint 2
Design a spreadsheet

This learning checkpoint allows you to review your skills and knowledge in designing a spreadsheet.

Part A

Workplace learners can either complete this assessment using a spreadsheet that they produce in the workplace or use the following scenario to complete the assessment.

Read the scenario, then complete the tasks that follow.

Scenario

Imagine you are working 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 footer that displays the current date and time
- insert a background shading – light blue
- use a thick outline border, and a thinner line for inside borders
- use bold titles
- use font type – Arial
- use font size – 14pt

1. Create a report of the weekly results. You need to have the spreadsheet calculate the client numbers at the start of each week.

   Use appropriate cell references to complete the calculation.

   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.

2. Create a monthly summary report as requested by the marketing manager. Use the SUM function to calculate summary figures for each month.

3. 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. The total figures for each segment should be presented as a pie chart. To comply with the organisation's requirements Mara must:

- insert a header stating the name of the business
- insert a footer that displays the current date and time
- insert a background shading – light blue
- use a thick outline border, and a thinner line for inside borders
- use bold titles
- use font type – Arial
- use font size – 14pt

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 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 the use of a style sheet have helped Mara?

8. Produce the spreadsheet yourself. Note you will need to use the SUM function to total industry segments – use these figures to produce the chart. Save the spreadsheet to an appropriate location. Name it **Summary industry paid placements**.
9. What automatic functions did you use in producing the report?

Topic 3
Create a spreadsheet

Previously you have learned how to design, or plan, a spreadsheet. It is important to know the purpose of the spreadsheet, who will use it, the inputs and outputs, and the processing needed to analyse the inputs and produce the outputs. It is also necessary to check your work to ensure it is accurate, and overcome any design flaws that may have arisen in the process of creating your spreadsheet.

In this topic you will learn how to:

3A Enter, check and amend data

3B Format a spreadsheet

3C Use and test formulas and functions

3D Overcome problems with spreadsheet design and production

3A Enter, check and amend data

Several types of data go into a spreadsheet. Once the data is in the spreadsheet, you need to check that it is correct, and fix any mistakes. Remember the acronym GIGO, which means 'garbage in, garbage out'. If you put the wrong data in, you get the wrong answers out.

The different types of spreadsheet data include:

- dates and times
- text
- numbers.

Examples of text data are names, addresses and product information. Date and time data can be in numerical or text format and can include months, days, hours, minutes and seconds. Examples of numbers are quantities, customer numbers, pricing, sales figures and interest rates.

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

Dates and times

Dates can be entered in the following formats:

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

For instance, 12/03/2012 is the 12 March 2012 if the format is Day, Month, Year but it is 3 December 2012 if the format is Month, Day, Year.

Times can be am and pm or 24 hour. Ten past six in the afternoon is 6.10 pm or 1810 hours.

Excel 2013 tries to match the formatting with the way the information is typed in.

19-May-15
2/07/2015

Always confirm the correct formats for your spreadsheet.

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.

	A	B
1	Ingrid Heffernan	
2		
3		

View text in the Formula Bar

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

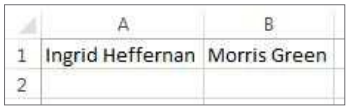
It may appear that the data is lost, but it is still contained in the cell.

A simple way to confirm this is as follows:

1. Click in the relevant cell.
2. View the cell's contents in the Formula Bar.

Format the cell to wrap text

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 the text within the cell.



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

To wrap text in a cell:

1. Select the cells.
2. Use the Wrap Text tool 

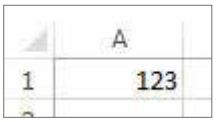
, which is located on the Home tab.

Wrap Text is commonly used for longer entries where you don't want to adjust the column width but want to be able to read all of the information in the cell; for example, address details.

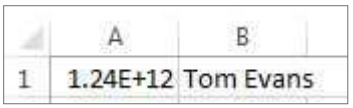
Adjusting cell width is explained in the next section on numbers.

Numbers

When entering numbers, the alignment is 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. The number of digits for a value is limited to 15.



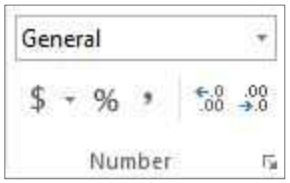
Sometimes numbers appear as shown below. This occurs when the number has too many digits for Excel to deal with, so it rounds it off and puts it in scientific notation.



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

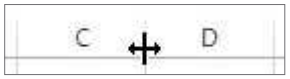
To correct the problem, adjust the cell width.

Use the Number grouping to increase or decrease the number of decimal places shown. It is also possible to make number formatting choices such as currency.



Adjust cell width

The easiest way to adjust the cell width is to position your cursor between the column headings and drag the cursor to the point where you want the width of the cell to end.



Alternatively, you can AutoFit the cell width to the longest entry by double-clicking between the column headings.

Check spreadsheets

It is important to always check your spreadsheet for accuracy. This may include double-checking with 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.

Spreadsheet checks to carry out include:

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

Check the accuracy of data entered

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 office efficiency and increase the prospects of customer and organisational satisfaction.

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 documentation you used to enter the data. 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.

Check formulas are working correctly

When using formulas and functions, always make sure the result you get is the result you want. Test formulas and functions before using them in the spreadsheet. Do this using a calculator. Also check the consistency of information against the original data and check that cell references, operators and functions are correct.

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 Formulas tool 

on the Formulas tab to review formula entries.

Check all instructions have been followed

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 figures with target figures. 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.

Ensure consistency of design and layout

Always check the design and layout of your spreadsheet conforms to your organisation's standards. Consistency in design and layout makes a spreadsheet easier to read, ensures it is useful and meaningful and promotes the image of your organisation.

Practice task 7

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

Customer accounts worksheet

	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	Phillips	$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
Luie	34.00

1. How many errors are in the worksheet?

2. What are the consequences of numeric values being entered incorrectly?

3. What should customer Smith's balance be?

continued ...

... continued

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

3B Format a spreadsheet

There are numerous techniques for improving the appearance of spreadsheets. Here are some examples of how formatting can change the appearance of a spreadsheet. Compare the two examples: the first has not been formatted and the second has.

	A
1	Profit
2	123
3	234
4	768
5	675

	A
1	**Profit**
2	*123*
3	*234*
4	*768*
5	*675*

Alignment on page

When creating spreadsheets, it is best practice to begin your spreadsheet at the start of the spreadsheet in 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:

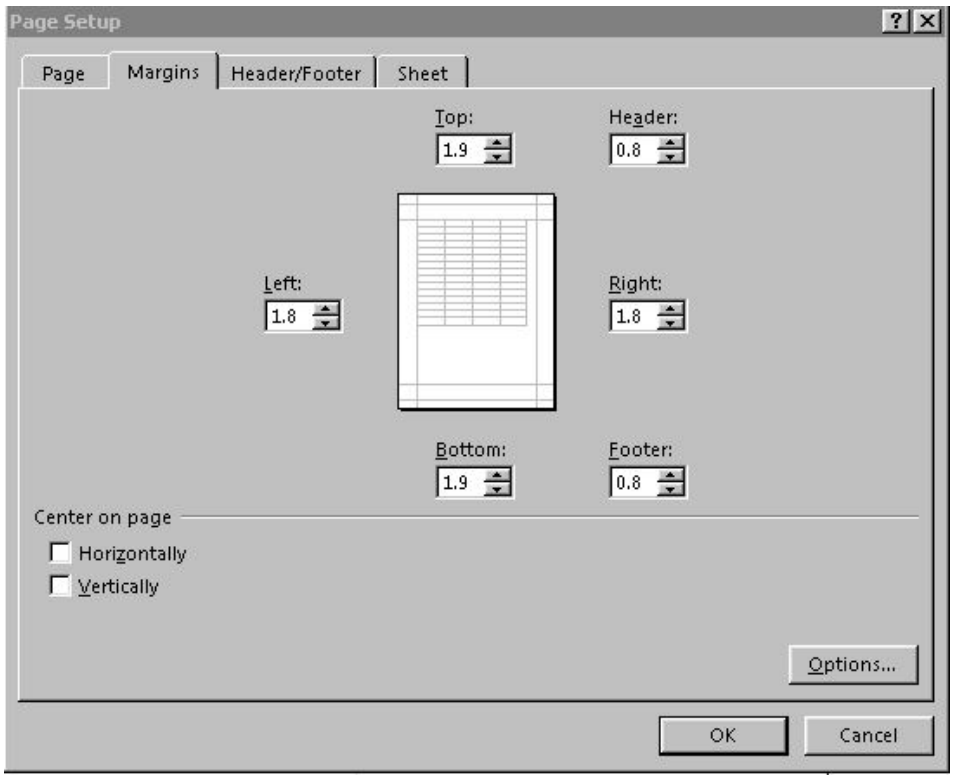
	A	B	C	D	E	F	G
1		End of year STUDENT RESULTS					
2		Results (each assess = 2.5% of overall result)					
3	Student name	Assess 1	Assess 2	Assess 3	Assess 4	Total	
4	Mary Jones	23	21	19	21	84	
5	Jon Youga	12	14	16	15	57	
6	Keon Rasimi	24	18	20	21	83	
7					MINIMUM RESULT	57	
8					MAXIMUM RESULT	84	
9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

Page alignment

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

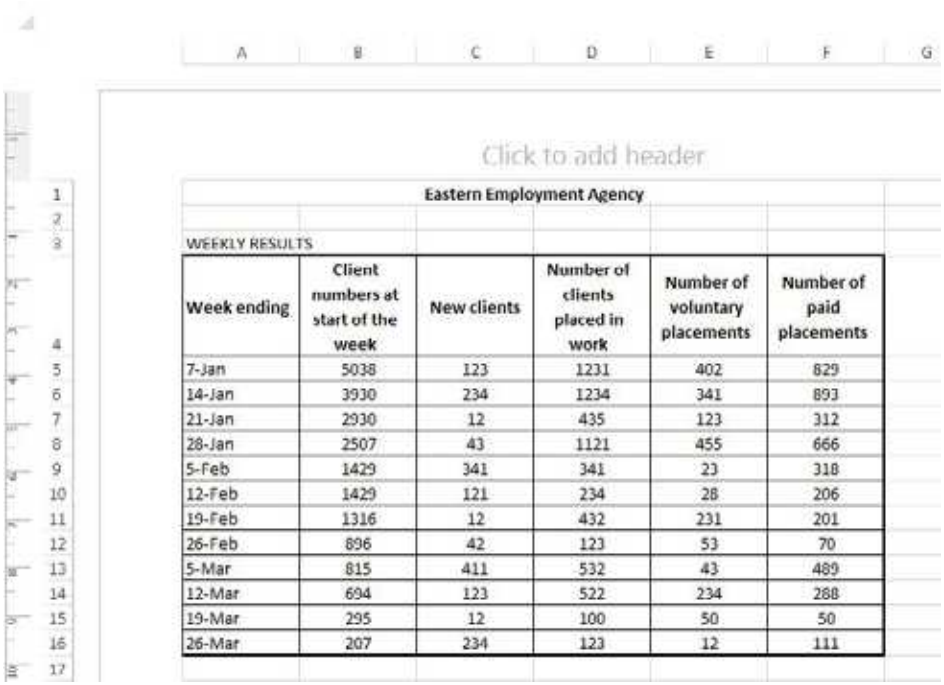
1. From the File tab, select Print, then select Page Setup at the bottom of the Settings panel
2. Select the Margins tab
3. Under Center on Page click Horizontally and Vertically

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



Use Page Layout view

Page Layout view is used to quickly and easily make adjustments to the worksheet. Page Layout view enables you to adjust 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. Page Layout view appears on screen as follows:

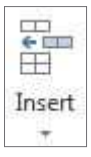


Week ending	Client numbers at start of the week	New clients	Number of clients placed in work	Number of voluntary placements	Number of paid placements
7-Jan	5038	123	1231	402	829
14-Jan	3930	234	1234	341	893
21-Jan	2930	12	435	123	312
28-Jan	2507	43	1121	455	666
5-Feb	1429	341	341	23	318
12-Feb	1429	121	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

Page Layout view can be accessed from the View tab on the Ribbon. Adjust margins by positioning the cursor on the margin line in the ruler so it is a double arrow and 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 Layout tab and selecting the Orientation tab.

Add and delete columns and rows

Columns and rows can be easily added or deleted from your spreadsheet.



To add a new row, from the Home tab, select Insert from the Cells grouping. Choose Insert Sheet Rows from the pull-down menu. A new row will be inserted above the selection.

To delete a row or column ,select the down arrow on **Delete** from the **Cells** grouping. Choose the appropriate option (column or row) to delete.

Use 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 that you undertake, such as inserting a company logo. Many other keyboard shortcuts are available. These are explained in Excel's Help function ?.

Some of the 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

Practice task 8

Open the spreadsheet called Customer Accounts you created in Practice task 7.

- 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. Don't 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.

3C Use and test formulas and functions

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

If you have created a formula in one cell, and you want to repeat it in additional cells, it can be copied or you can use AutoFill. AutoFill is used to repeat sequenced information that is in alignment with the selected cell. Use the AutoFill handle to repeat the sequence of formulas and functions.

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.

From the Home tab, the **AutoSum** icon Σ is within the **Editing** grouping. AutoSum enables you to add values automatically using the SUM function. Select a range of values that you want to calculate and click the **AutoSum** icon.

Test formulas and functions

You must ensure that your spreadsheet is working properly.

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 spreadsheet 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 as the spreadsheet. If not, you have probably made one of the mistakes in the list below.

Examples of some of the things that can go wrong with formulas:

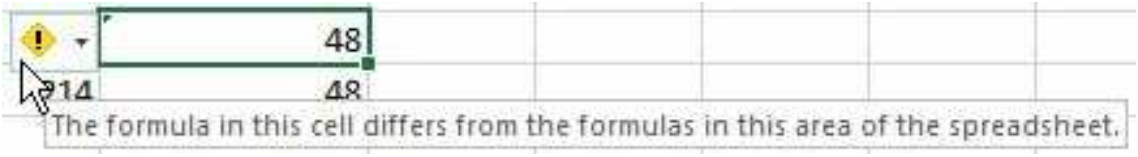
- Typing in the wrong cell reference in a formula (such as B11 instead of B1)
- Making a mistake when typing the formula (such as having a + instead of a *)
- Not knowing what a formula is meant to do and so using the wrong formula.

Error alerts

Excel has many features to help you identify errors. For example, an alert will appear if there is an inconsistency in a formula. Look at the following example:

	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.

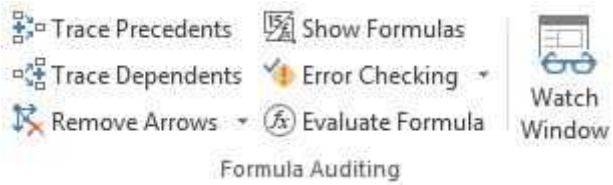


This alerts you about a possible problem.

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

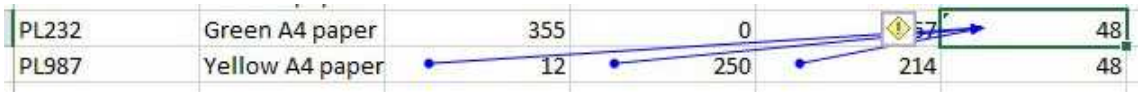
Audit tools

From the Ribbon, choose the Formulas tab. Go to Formula Auditing for tools that investigate errors and determine what action needs to be taken to correct them.



Of particular use is the Show Formulas tool, which changes the view so you can see all the formulas in the spreadsheet.

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, you firstly need to select the cell that contains the error and then select Trace Precedents. 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 don't appear to be correct, take appropriate measures to check the entries. This includes checking calculations as well as source information. If you are still in doubt, seek advice from your manager or colleagues.

Use of absolute and relative cell addresses

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. Relative references change when you copy and move them and absolute references don't. To make a cell reference absolute, you need to place the $ symbol in the reference. Look at the following example.

=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.

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**					

2. Create a formula to calculate the profit. You must use the cell references of the cells you want to use in your calculations and not the actual numbers in the cells; for example, **=A3+B3** would add up the values in the cells A3 and B3.

- Select D4, the first empty cell under Profit. Enter the formula **=B4–C4**. Use the following example to help you.

Month	**Income**	**Expenses**	**Profit**
January	5221	523	=B4-C4

- Press the Enter key to perform the calculation.
- Once you have a calculation, use Fill 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**					

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

  Look at the following example to help you.

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

continued ...

... continued

- Press the Enter key to perform the calculation. Fill the calculation down the column.
- Select F4, the first empty cell under End Profit. Enter the following formula **=D4–E4**. This calculation subtracts Tax from Profit, giving you an End Profit value.

Use the following example to help you.

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

- Press the Enter key to perform the calculation. Fill the calculation down the column.
- **Save** your work.

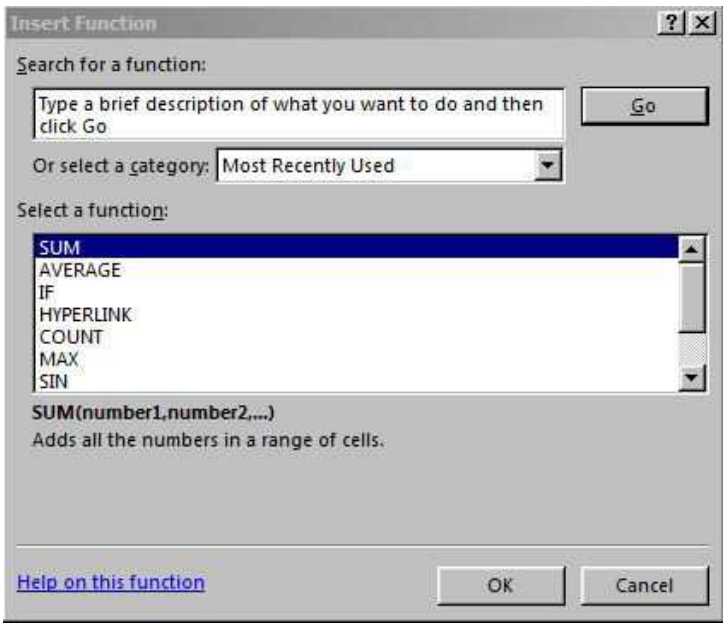
3. Enter the following data into a new spreadsheet.

	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%	

- Calculate the January commission. Remember to use the cell references in your formulas and not the actual numbers (so use B3 and not 34,050 for example).
- **Save** the file as January sales commissions.

4. In this exercise you are going to use a function to calculate totals.
   - Open your Warehouse Profit spreadsheet. You are now going to use the SUM function to add totals for each column of your worksheet that has a numeric value.
   - Select cell B10. From the Formulas tab select the Insert Function button 

. You will see the following Insert Function dialog box. Highlight SUM and click OK.



continued ...

... continued

- 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.
- B10 should now hold the calculation of all Income values added together.
- Select the cells **C10**, **D10**, **E10** and **F10** one at a time and use the SUM function to add the values of their corresponding columns. 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

- Save and close your work.

5. Open the file January sales commissions.
   - Use **AutoSum** to calculate the total of the January commissions.
   - Use the maximum **MAX** function to calculate the highest commission.
   - Use the minimum **MIN** function to calculate the lowest commission.
   - Use the average **AVERAGE** function to calculate the average commission.
   - Save your changes.
6. Open the file January sales commissions. Practise using the Trace Precedents tool to check you have entered the functions correctly.

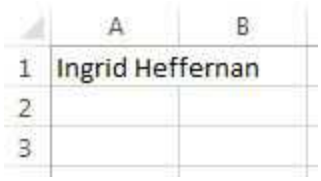
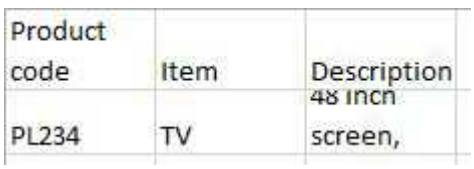
3D Overcome problems with spreadsheet design and production

It is inevitable that problems will arise when designing and producing spreadsheets. Fortunately, there are many resources to help you in overcoming them. Using the Excel Help function, training manuals and instruction guides may be useful. You may also need to seek further help from colleagues or managers. If the problem is still unresolved, you may need to seek specialist help from your organisation's information technology staff.

Common problems

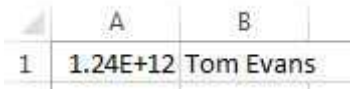
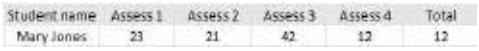
A common problem is not following the requirements of the job. Examples include not conforming to organisational standards or leaving out some inputs.

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

Problem	Example	Action to take to correct the problem
Data entry	• Misspelling names • Incorrect figure entry • Non-inclusion of information	• Check spelling • Proofread and check spreadsheet data
Text flows over or text truncates	• Text entry flows into adjacent cell  • 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 • Adjust alignment of cell content to be aligned to the top of the cell

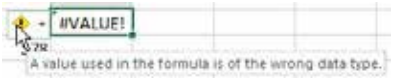
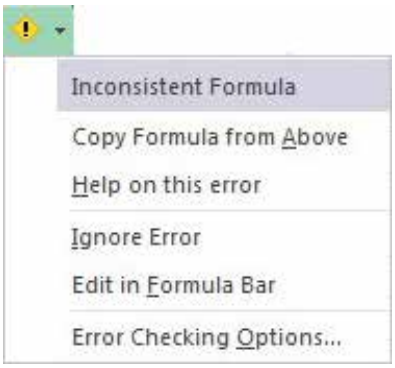
continued ...

... continued

Problem	Example	Action to take to correct the problem
Number entry has too many digits		• The number of digits is limited to 15
Date formatting not consistent		• Adjust date formatting to the same format throughout
Date or time or a number displayed as ###		• Adjust column width
Cell alignment not consistent		• Adjust alignment – vertical and horizontal
Result of calculation does not appear to be correct		• Check formula or function inputs • Check data entry
Result of calculation appears with a #VALUE! alert		• Alert appears when a cell containing alphabetical content is included in a calculation; check formula or function input

continued ...

... continued

Problem	Example	Action to take to correct the problem
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 you can use

Working with computer applications can be quite complex. 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.

Manuals

Your organisation may have task- or role-specific manuals to help you produce spreadsheets. These manuals may 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. Being familiar with the manuals used in your organisation will save time and increase your efficiency when producing 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. Look for paper-based manuals in your organisation or in your local library.

You may have been to a training course to learn a particular computer function or a supplier may have instructed you in the use of a piece of equipment. Training courses usually provide a comprehensive set of instructions or notes that are worth keeping for future reference.

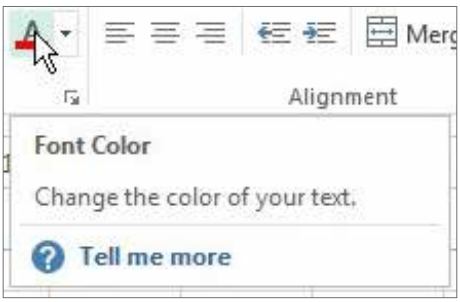
Online help

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 sites useful.

- www.support.microsoft.com – This is Microsoft's main site for finding help to solve problems for all Microsoft products. You can ask questions online and download files, including service packs, drivers and patches. This site also gives you access to the Microsoft Knowledge Base, which offers help for all aspects of problems that can be experienced when using Office 2013.
- www.office.microsoft.com – This site provides resources for all Office applications. It has news and announcements and useful files that you can download. If you are connected to the internet, you can open this site by choosing Help and ensuring you are connected to Office.com.

Tool buttons

Each time you move your mouse pointer over a tool button and leave it there for a moment, it will display a help 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 Color tool button.



Practice task 10

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 and F1 and points to the icon with his mouse.

Recently, Chinh attended a two-day Excel training course at a local community centre. Chinh kept the training booklet they handed out and stores it 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 solved using the Office Assistant. Chinh then uses Microsoft's support website to find a solution, or he refers to the paper-based material he has gathered.

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

2. Describe how Chinh uses paper-based manuals for help.

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

Summary

1. Spreadsheets should be consistent in design and layout.
2. Spreadsheet design and layout must adhere to organisational and task requirements.
3. Text, numerals, date and time, formulas and functions can be entered into a spreadsheet.
4. It is important to proofread and check spreadsheets to ensure accuracy of the end product.
5. Formatting options provide a means to improve the readability and design of spreadsheets.
6. Using formulas and functions for calculations is what spreadsheets are all about.
7. Formulas and functions allow repetitive calculations to be done automatically. All the user has to do is change the data.
8. Excel has a number of ways, such as error alerts, to identify possible errors in the worksheet.
9. There are many ways you can get help including manuals, help desks and online support.

Learning checkpoint 3
Create a spreadsheet

This learning checkpoint allows you to review your skills and knowledge in creating a spreadsheet.

Part A

Create the following two spreadsheet reports. Save them to an appropriate location and name them as shown. Use appropriate formulas and functions to create the summary figures. Use the various software functions to assist you to produce them. Use any help resources available to you as needed.

No.1 Bird Watch Club
Monthly Spot Statistics

	Bird species														
Bird Watcher name	Stubble Quail	Australian Pelican	Darter	Little Pied Cormorant	Hoary-headed Grebe	Black Swan	Magpie Goose	Chestnut Teal	Pink-eared Duck	Spotless Crake	TOTAL	AVERAGE	MINIMUM	MAXIMUM
Ali	23	26	23	12	6	9	23	3	12	12				
David	2	12	42	23	2	23	42	2	1	32				
Esther	45	23	41	52	4	12	2	1	1	12				
Gowrie	65	52	52	5	1	4	4	0	5	12				
Helen	43	52	5	87	0	7	21	0	6	5				
Lee	12	52	6	2	0	21	4	0	2	6				
Malcolm	2	6	7	23	3	5	65	0	5	6				
Shari	4	6	7	65	12	6	3	2	7	2				
Trudi	1	21	8	23	1	7	2	2	10	1				
Yousef	1	2	3	5	2	0	6	1	3	0				
TOTAL														
AVERAGE														
MINIMUM														
MAXIMUM														

22	Bird watcher awards for month				
23	**Bird watcher name**	**Target spots for month**	**Actual spots of month**	**% of actual to target**	**Actual over / under target**
24	**Ali**	67		=C24/B24	=C24-B24
25	**David**	322			
26	**Esther**	34			
27	**Gowrie**	98			
28	**Helen**	322			
29	**Lee**	52			
30	**Malcolm**	123			
31	**Shari**	340			
32	**Trudi**	213			
33	**Yousef**	45			

After producing the spreadsheet reports, write your answers to the following questions.

1. List the software functions that you used to format the spreadsheet.

2. What did you do to check that the formula and function calculations were correct?

3. What help resources did you use to assist you to overcome problems in the design and production of the spreadsheet?

Part B

Read the case study. Write down or tell your trainer, your answers to the questions.

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 have looked the same as the following example:

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 was required to do the following:

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

Gabby was new to using Excel, and wasn't sure how to access and use the style sheet. She was experienced in using the SUM function, but was not sure about the AVERAGE function. Gabby decided that she would produce a spreadsheet that contained all the relevant information and present that to the product manager – surely that would be enough for them to determine whether to release the product or not. Gabby's spreadsheet looks like this:

continued ...

... continued

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. Produce the required spreadsheet for Gabby. Save it to an appropriate location and name it **New product evaluation – ice-cream**.

6. What software functions did you use to format the spreadsheet?

Topic 4
Produce simple charts

A chart is a graphical representation of selected worksheet information. Charts are used to visually represent numerical data and make it easier to spot trends, highlight changes and compare figures over a period of time.

The type of chart you use will depend on the type of data you are analysing; for example, you might choose a pie chart to show a single set of data and a column chart to show multiple sets.

You must format a chart in line with organisational and task requirements. Formatting a chart improves the presentation and readability of the information.

In this topic you will learn how to:

4A Select appropriate chart type and design

4B Create charts

4C Modify chart type and layout

4A Select 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 type of charts it uses. For instance, it may prefer to use column charts as opposed to line charts because it is 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 consistency of image.

Task requirements can depend on a set of instructions and protocols in the production of charts. You may be asked to prepare a summary report of monthly sales as well as a chart. If this is the case, you need to produce two 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.

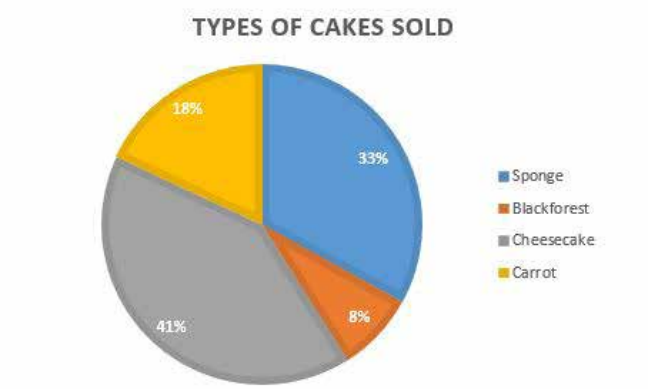
Chart types and their features

If you are using an Excel spreadsheet, you will be able to display your data in a chart. The types of charts you can select include area, bar, column, pie, line and scatter.

Charts are visually appealing and make it easy to see data and recognise patterns and trends. They make it easier to absorb information at a glance.

Example: chart

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 in the columns and rows of a worksheet.



Charts are linked to information contained in the selected cells. That means if the cell data is updated (for example, the value 45 changes to 88), the chart is also updated accordingly.

Choose and design a chart

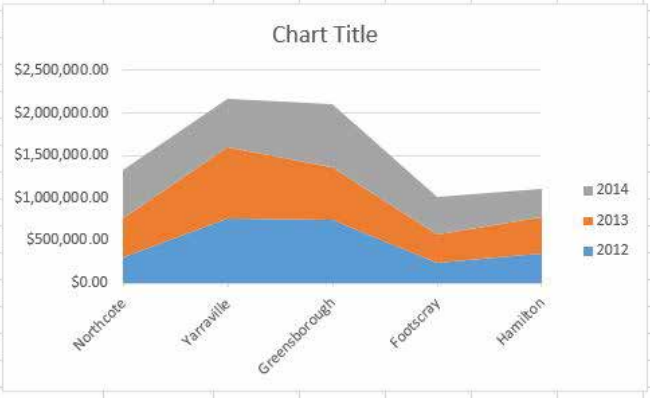
The kind of chart you choose and its design should reflect your organisation's needs. In this section, you will look at different types of charts and consider some of their most appropriate uses.

Area chart

Area charts are used to demonstrate changes over time. For instance, they may be used to show and compare changes to sales over a given time. Area charts highlight total values across a time line.

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

	A	B	C	D	E	F
1		Northcote	Yarraville	Greensborou	Footscray	Hamilton
2	2012	$303,002.00	$766,299.00	$736,252.00	$234,333.00	$345,222.00
3	2013	$451,909.00	$827,266.00	$627,262.00	$342,244.00	$423,234.00
4	2014	$568,218.00	$568,209.00	$743,662.00	$443,422.00	$342,344.00



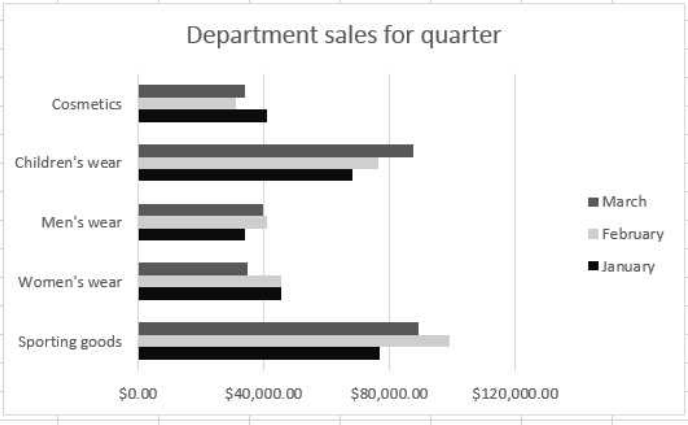
Bar chart

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.

Department sales for quarter

	Sporting goods	Women's wear	Men's wear	Children's wear	Cosmetics
January	$76,688.00	$45,466.00	$34,009.00	$68,087.00	$40,827.00
February	$98,882.00	$45,628.00	$40,993.00	$76,529.00	$30,887.00
March	$88,998.00	$34,778.00	$39,877.00	$87,652.00	$34,098.00



Stacked bar chart

Use a stacked bar chart to compare the values of individual totals to a total across categories.

The following example compares monthly department sales figures, as well as the total overall amount.

Department sales for quarter

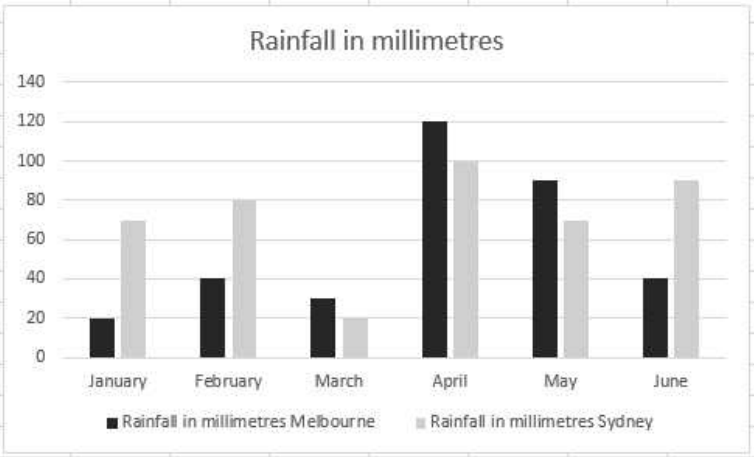
	Sporting goods	Women's wear	Men's wear	Children's wear	Cosmetics
January	$76,688.00	$45,466.00	$34,009.00	$68,087.00	$40,827.00
February	$98,882.00	$45,628.00	$40,993.00	$76,529.00	$30,887.00
March	$88,998.00	$34,778.00	$39,877.00	$87,652.00	$34,098.00

Column chart

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 can be used in a comparison.

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

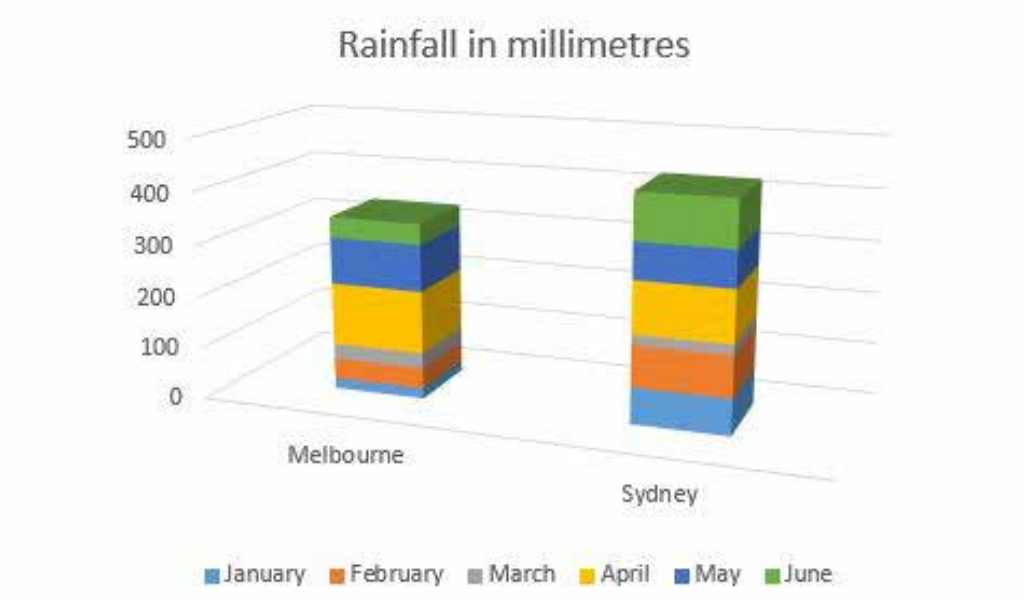


3-D column chart

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

Use a stacked column chart to compare the values of individual totals to a total across categories.

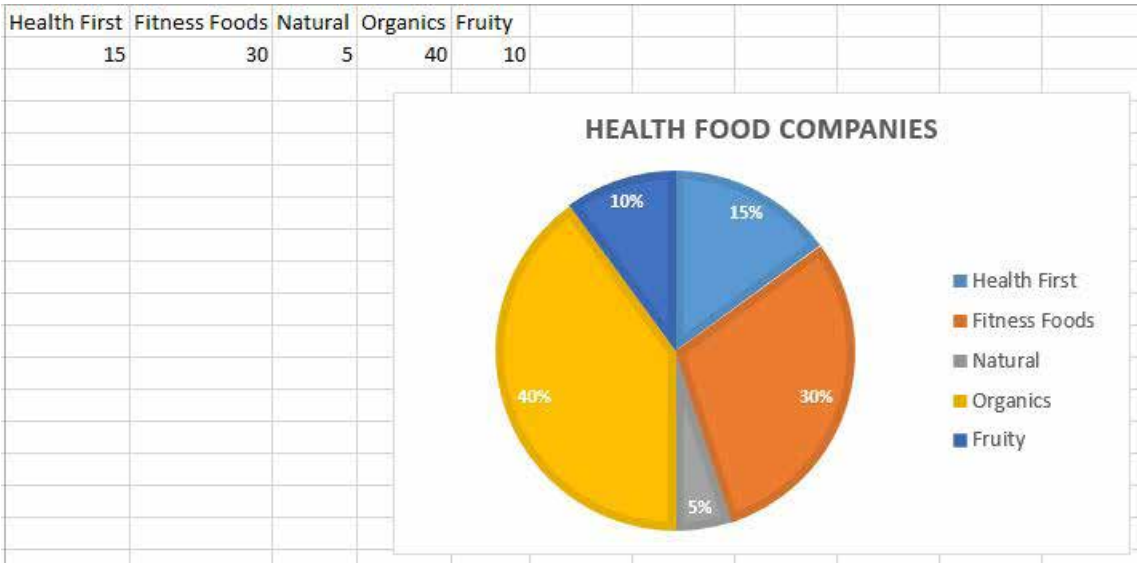
The following example compares monthly rainfall for Melbourne and Sydney, as well as the total overall amount.



Pie chart

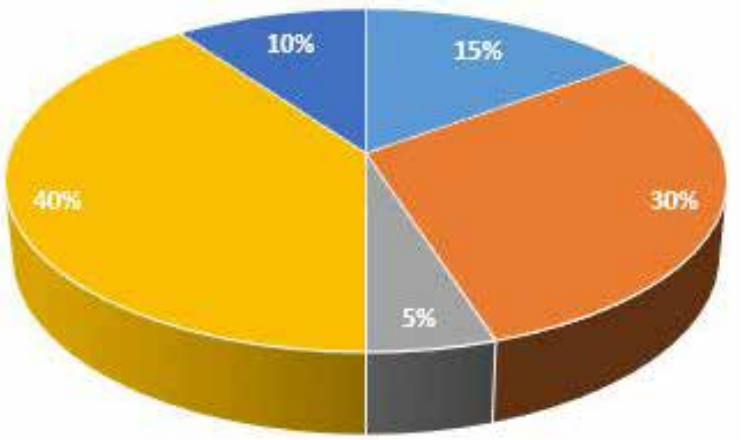
A pie chart shows a data series in percentage segments. It is useful for showing data as a percentage of a whole. Pie charts are commonly used to show which products are selling or how much market share an organisation enjoys.

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



3-D pie chart

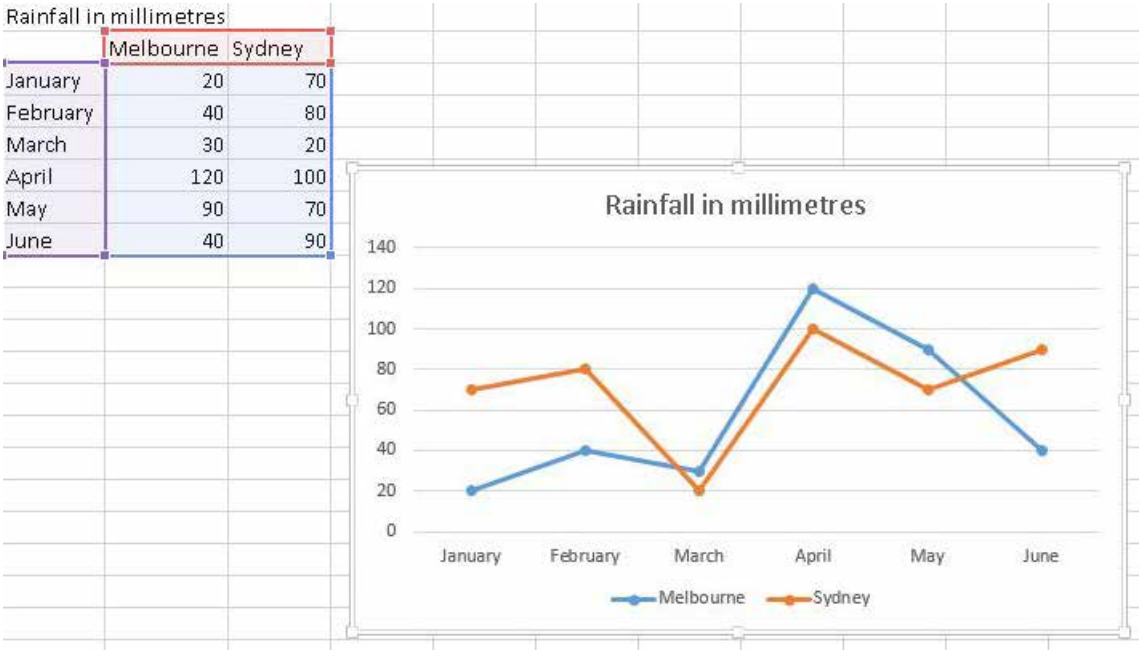
If you prefer the 3-D look for your pie chart, choose 3-D when making your chart selection.



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 show rainfall in Melbourne and Sydney.



Scatter chart

A scatter chart is used to compare and arrange data to analyse the relationships of 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 sales and actual sales.

Monthly sales targets

	Estimated	Actual
Jan-12	34000	35272
Feb-12	45000	38002
Mar-12	54000	65027
Apr-12	50000	65282
May-12	48000	53899
Jun-12	48000	42722

Practice task 11

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

Data to be included in a chart	Type of chart used	Reason
Percentage of actual sales for individual product items. **Plant sales for the week:** Tree 25% Shrub 10% Grass 15% Flower 20% Ground cover 30%		
Comparison of profit for individual retail outlets compared with year. **Profit for years 1 and 2:** Outlet Year 1 Year 2 Boronia $45,900 $65,009 Maidstone $57,392 $65,328 Dingley $45,922 $57,281 Doreen $10,282 $45,829 Altona $67,292 $56,291		
Comparison of workplace hazards identified in the organisation. **Month Factory Office** Jan 17 2 Feb 15 4 Mar 15 5 Apr 12 3 May 9 2 Jun 7 2		
A chart to show changes in workplace hazard identification over a given period of time. **Month Factory Office** Jan 17 2 Feb 15 4 Mar 15 5 Apr 12 3 May 9 2 Jun 7 2		

continued ...

... continued

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 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 has realised that some of the supply coordinators are finding the information cumbersome to interpret. Julian has decided that in addition to the reports, he would like to trial preparing the information in chart form – a chart that compares 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.

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

4B Create charts

To create charts in your spreadsheet, the first thing is to know what data you want to present. The second is to know what you want to do with it – the purpose of the chart. Then you can 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.

Before you start to produce charts, become familiar with the terms used when referring to parts of a chart.

The following information explains the meanings of terms you need to know.

Axes

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 (the plural of axis) 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).

Categories

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 display series 1, series 2 and so on.

Produce a chart

To produce a chart, you must first enter data into a worksheet. You then need to select the data you want to appear in the chart. Use the **Insert** tab and select the appropriate chart for the data that you wish to present. A chart is linked to the worksheet it is created from, so if you alter the data in the worksheet, the chart will be updated.

To produce the chart, choose the data that you want to present. Select the data by either clicking and dragging over it with the mouse, or clicking on the cell to select it and then using the **Shift** key and arrows on the keyboard to select the data.

The following example shows what selected data looks like.

	A	B	C	D	E	F
1		Northcote	Yarraville	Greensborou	Footscray	Hamilton
2	2012	$303,002.00	$766,299.00	$736,252.00	$234,333.00	$345,222.00
3	2013	$451,909.00	$827,266.00	$627,262.00	$342,244.00	$423,234.00
4	2014	$568,218.00	$568,209.00	$743,662.00	$443,422.00	$342,344.00

Example: choose and produce a chart

The type of chart you choose will depend on your organisational requirements.

The following steps show how to produce a column chart.

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

	A	B	C	D	E
1					
2	**Company Cars**				
3					
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

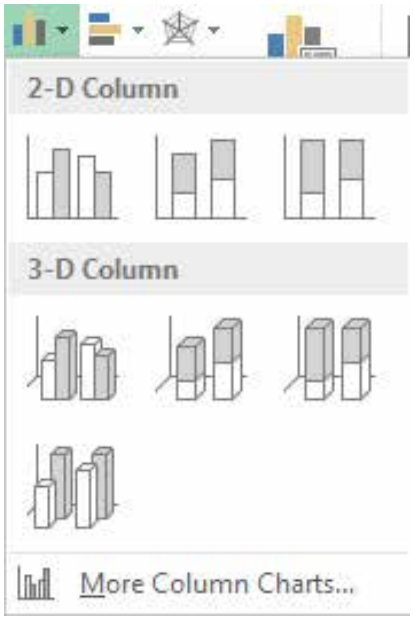
continued ...

... continued

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. From the **Insert** tab, select the appropriate chart you wish to display; for example, 'Column'.



continued ...

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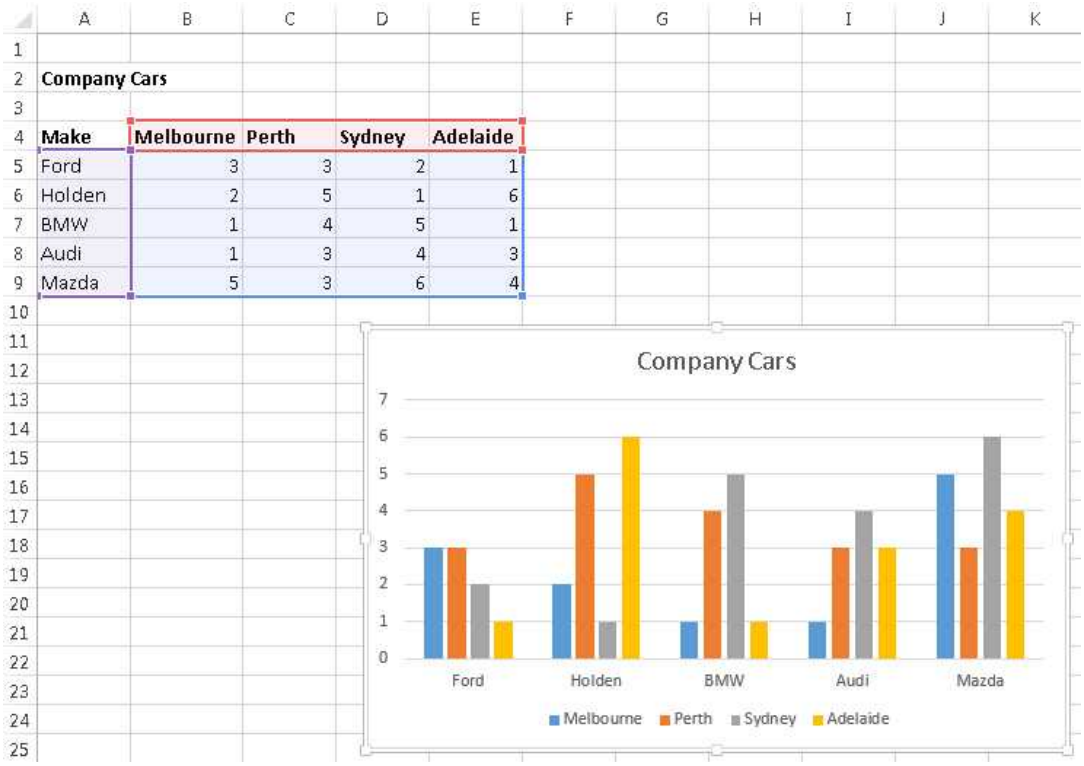
4. The chart will now display as an object in your spreadsheet.



5. To move the chart to a separate sheet within the workbook, select **Move Chart** from the **Design** tab. A dialog box will appear; select to place the chart in a new sheet and then name it appropriately (for example, 'Cars by state').

6. 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.

7. 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.
8. Trendlines can be added by selecting the **Trendline** tool from the **Layout** tab in **Chart** tools.

Practice task 12

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

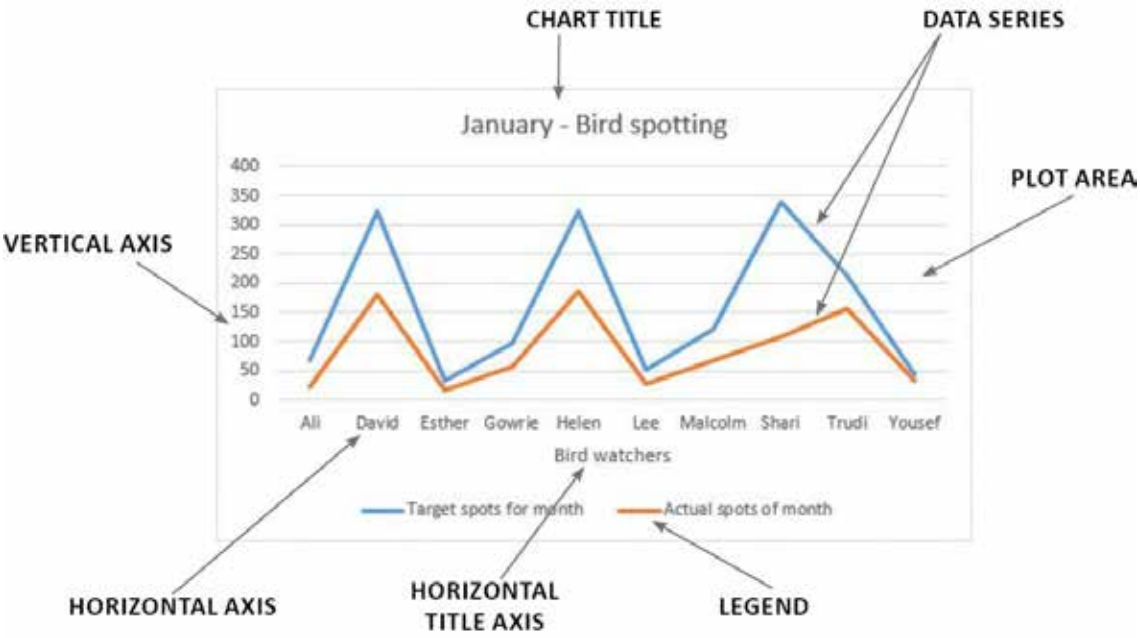
1. Create a column chart that compares the sales data.
2. Create a scatter chart that compares customer numbers with quantity sold.
3. Create pie charts for sales, customer numbers and quantity sold.
4. Save your file as **Hemline Miller January Report**.

4C Modify charts and layout

When working with charts, it is important to understand how to make changes if they are required. You can improve the appearance and ease of understanding by using titles, axis labels, legends, colour and changes to layout.

Format your chart

Once you have created a chart, you need to format it to suit your organisational requirements and make it easier to understand. This may include formatting the data range, text and legend or adding a pattern to the chart area. Look at the following example of a chart and notice the different components that can be formatted.

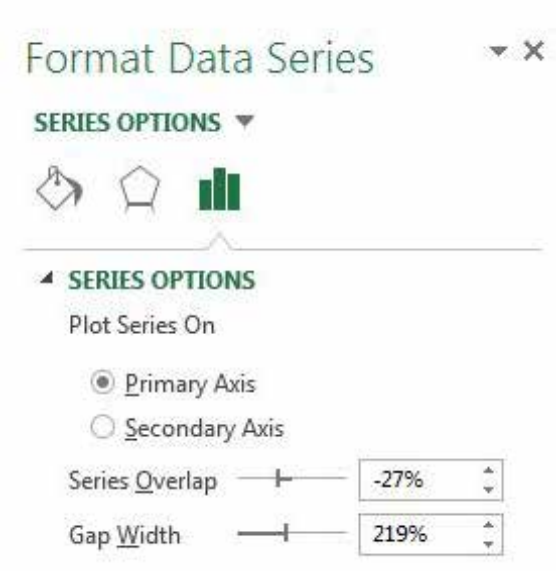


Each component of the chart can be formatted by selecting the item, right-clicking your mouse to display the shortcut menu and then making formatting choices as appropriate. You can also use the **Chart Tool** buttons.

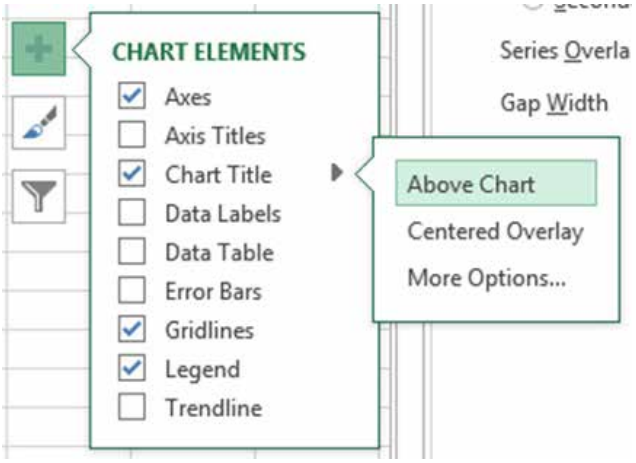
Formatting your chart

Once you have created a chart you will need to format it to suit your organisational requirements. This may include formatting the data range, text and legend, or adding a pattern to the chart area. The following steps show how to format a chart.

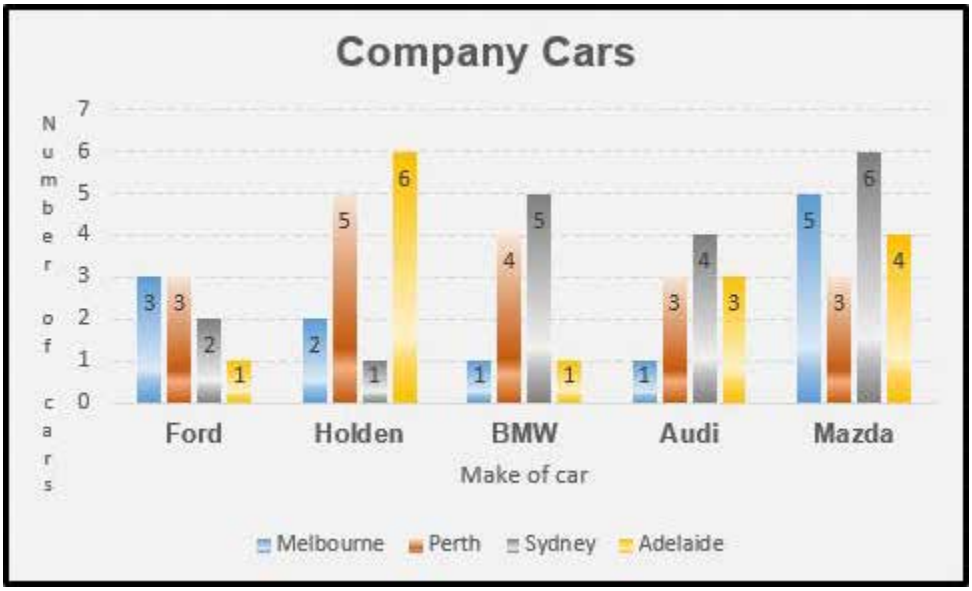
1. Open the spreadsheet with your chart.
2. Click inside any of the data series columns. Right-click your mouse and select **Format Data Series**. You will see the following **Format Data Series** dialogue box.



3. Click **Fill** and select **Gradient** fill, then choose a preset colour and click on **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.
4. Repeat this process to choose **Gradient** fills for the other columns.
5. 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**. The **Format Plot Area** dialogue box will appear. From **Fill**, select **Solid Fill** and choose an appropriate colour. Click **Close**.
6. Right-click in the **Chart Area** and select **Format Chart Area**. The **Format Chart Area** dialogue box will appear. From **Fill**, select solid fill and choose an appropriate colour. Click **Close**.
7. To add a border to the **Chart Area**, right-click and select **Format Chart Area**. From the **Format Chart Area** dialogue box, select Border colour, choose **Solid Line** and make the colour black. Click **Close**.
8. To add a Chart title, select **Chart Title** and then **Above Chart** from the **Layout** tab.



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



Why format your chart?

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. If you do not have a colour printer, or are not presenting the charts electronically, it will not be necessary to spend a lot of time selecting colours and so on. 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. Formatting of the chart can relate to colour choice, using gridlines, adding borders, adding titles and labels, font size and type, and even changing the choice of chart type to be used.

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

Modifying a chart

A chart may need to be modified. This could mean changing the type of chart, changing the range of data to be displayed in the chart or changing the formatting of 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.

Design tools

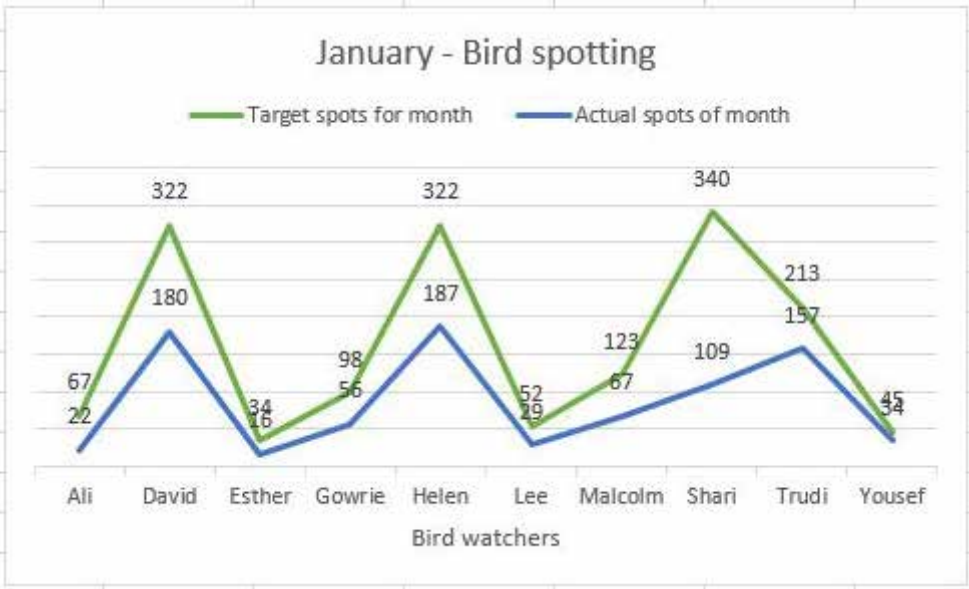
Design tools allow you to change the type of chart selected, adjust the style and layout, alternate the view of data between row or column, and check or adjust the data selected.

Chart styles tools

Chart Styles can be used to change the colours used in the chart.

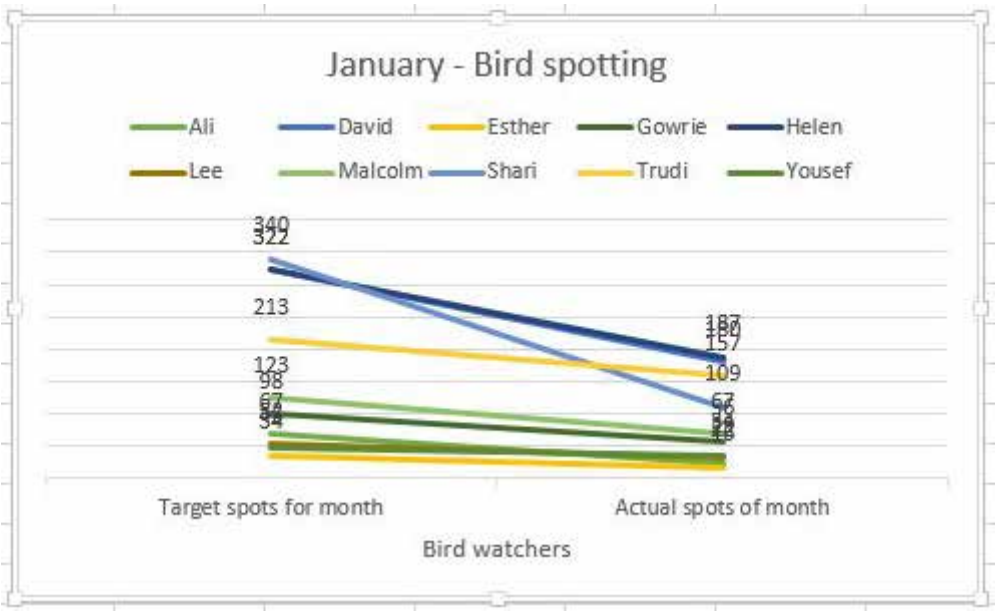
Chart layout tools

Chart Layouts can be used to change the way the chart is set out.



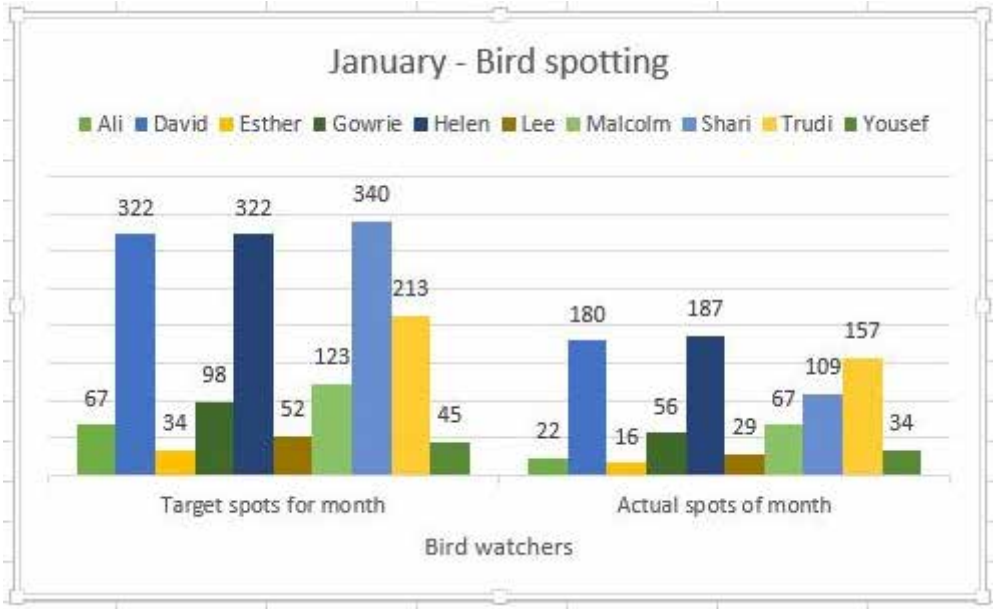
Data tools

Data tools can be used to change the data range or adjust the way the data is presented in the chart.



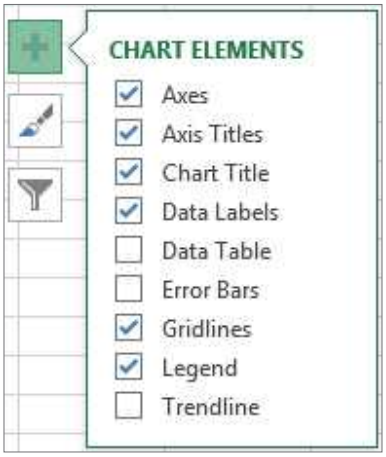
Type tools

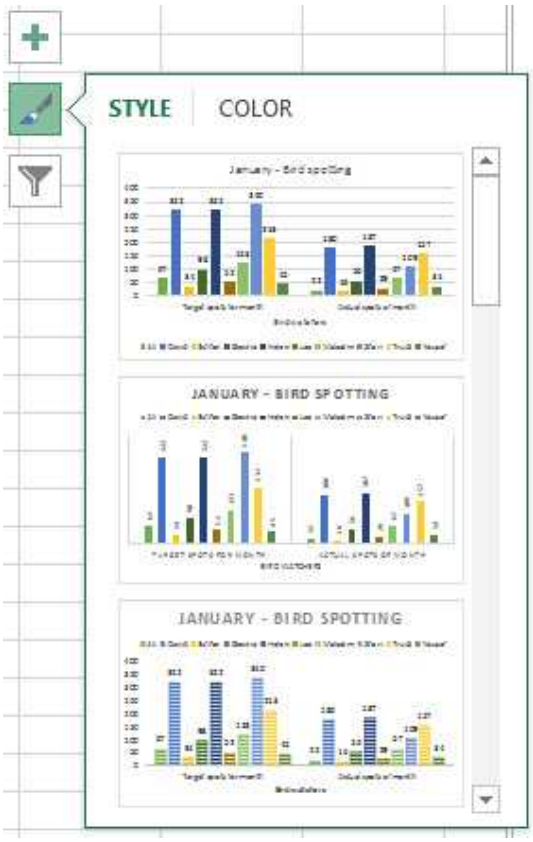
Type tools can be used to change the type of chart presented.

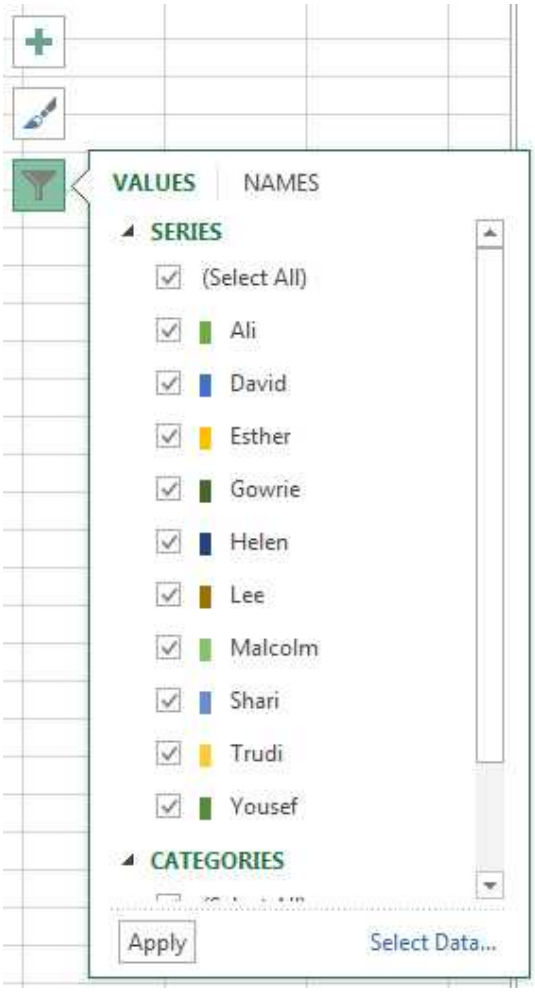


Layout tools

Layout tools allow you to add to and adjust the appearance of the chart by adding titles, labels, gridlines and so forth.

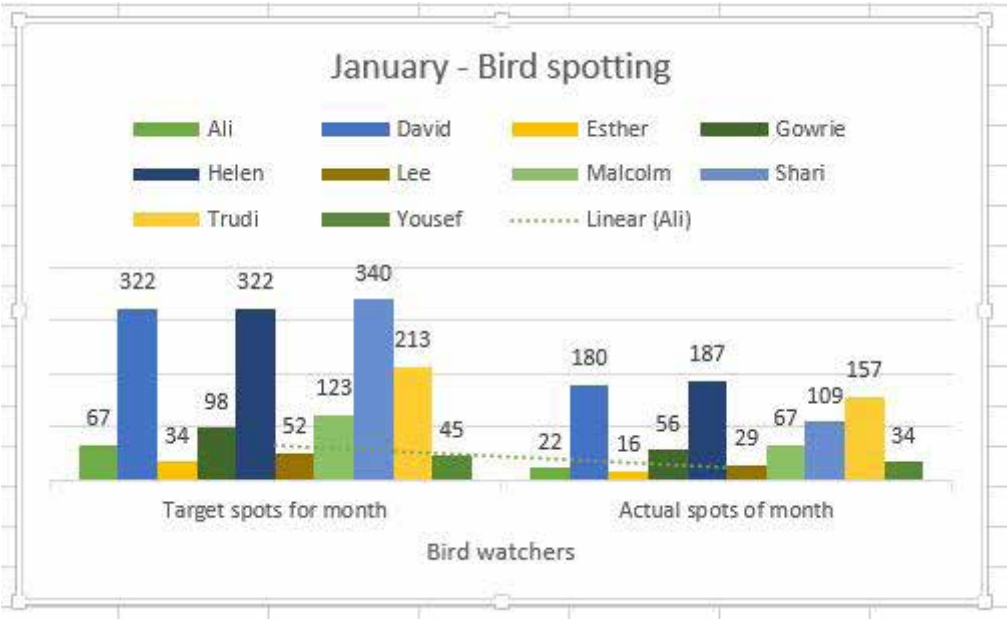






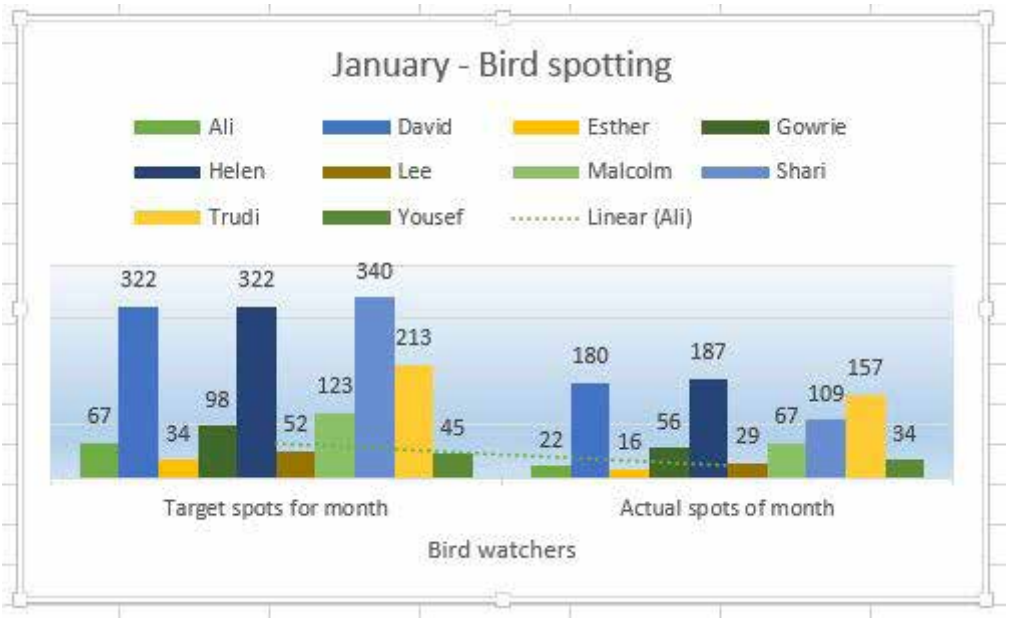
Analysis tools

Use the **Analysis** tools to add a straight line to compare individual results to the average.



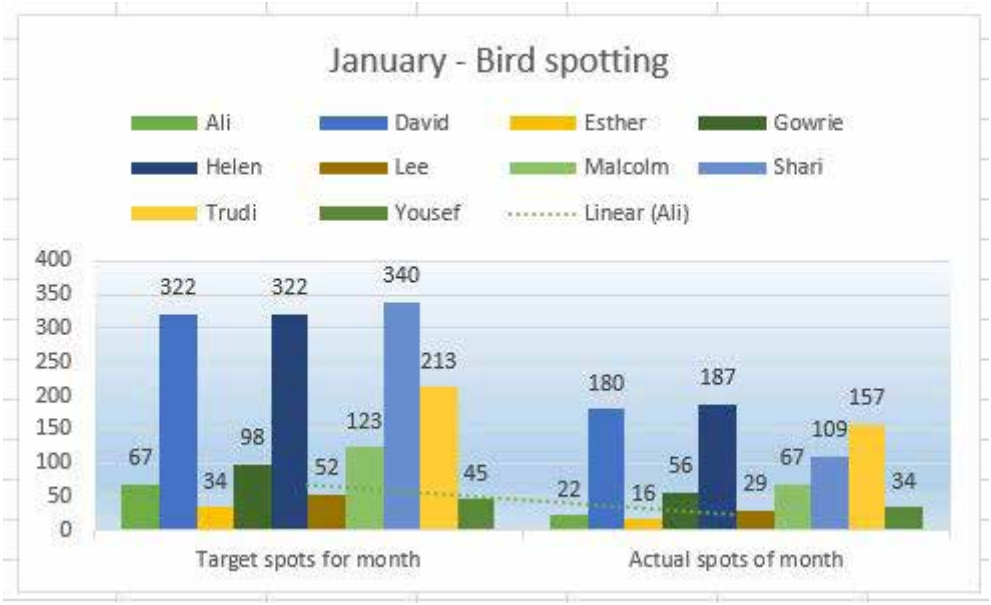
Background tools

Use the **Background** tools to format the plot area (right-click on area and select **Format Plot Area**).



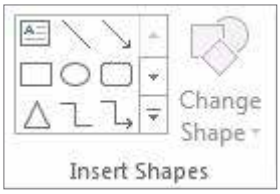
Axis tools

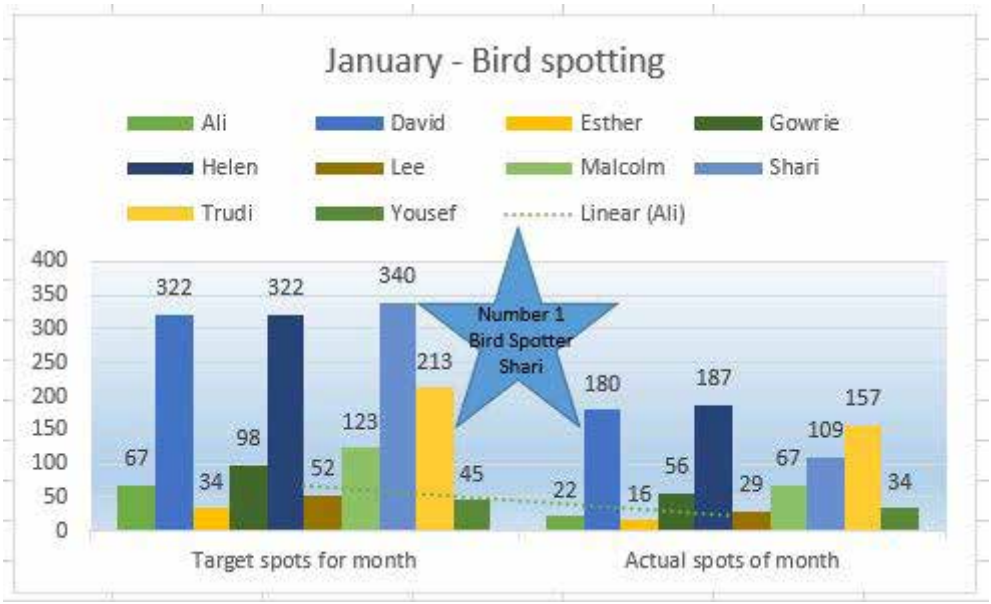
Use the **Axis** tools to add gridlines and axis information.



Format tab

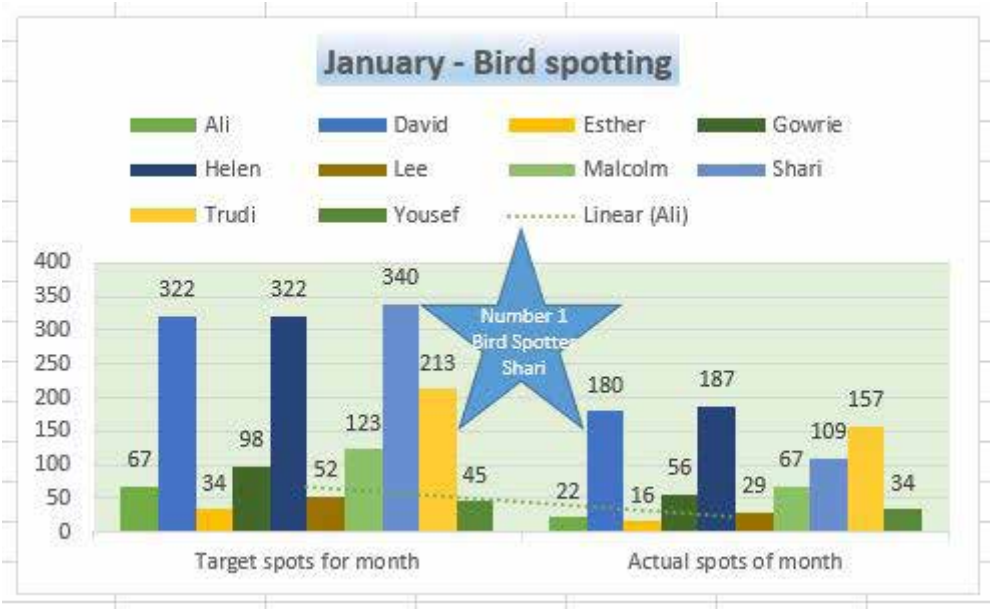
From the **Format** tab, use the **Insert Shapes** group to add shapes and text, and the **Insert** tab, **Illustrations** group to add pictures and online pictures.





Current selection tools

Use the **Current Selection** group to select the various components of the chart (such as a chart title) and adjust their individual appearance.



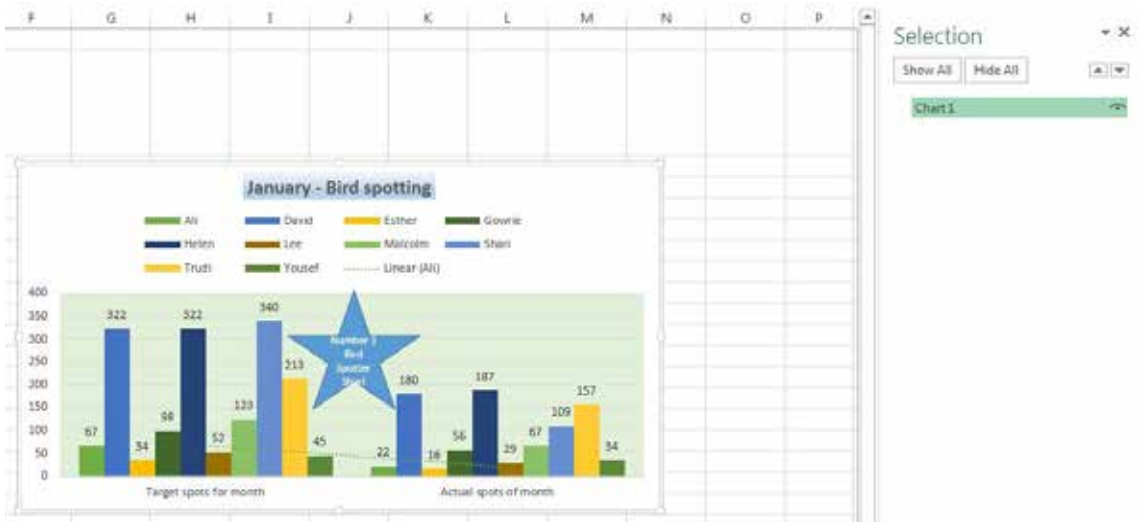
Format tools

Format tools enable you to alter the general appearance of the chart such as colours, font type and font size.

For example, **Size** tools can be used to change the height and width of the chart, adjusting the overall layout.

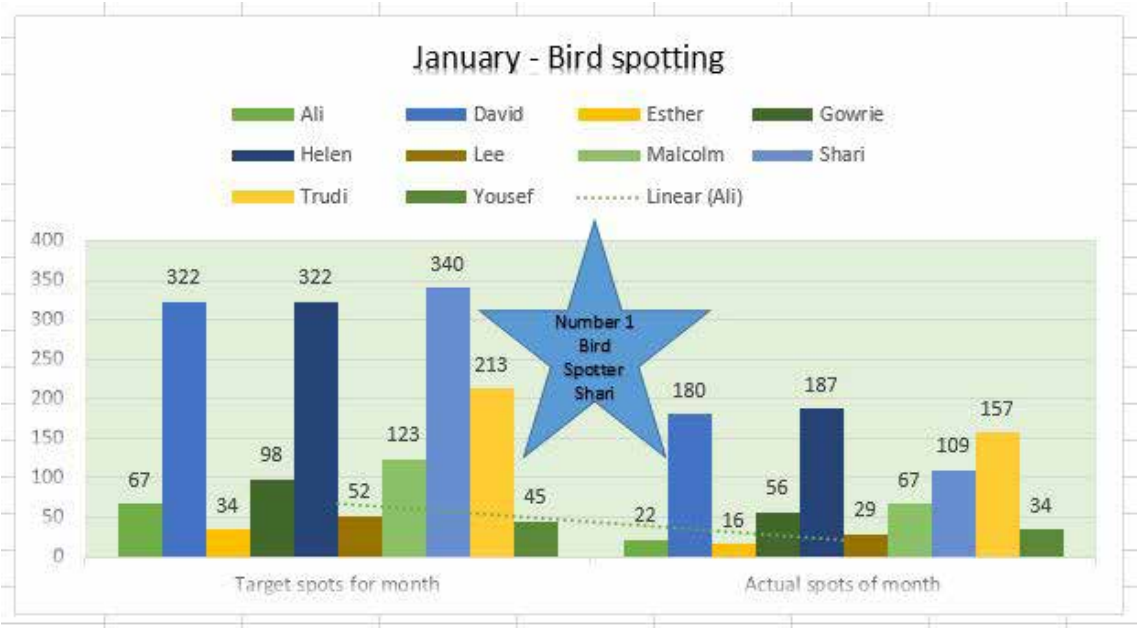
Arrange tools

Arrange tools can be used to display the selection pane, which enables you to hide or display charts in the spreadsheet.



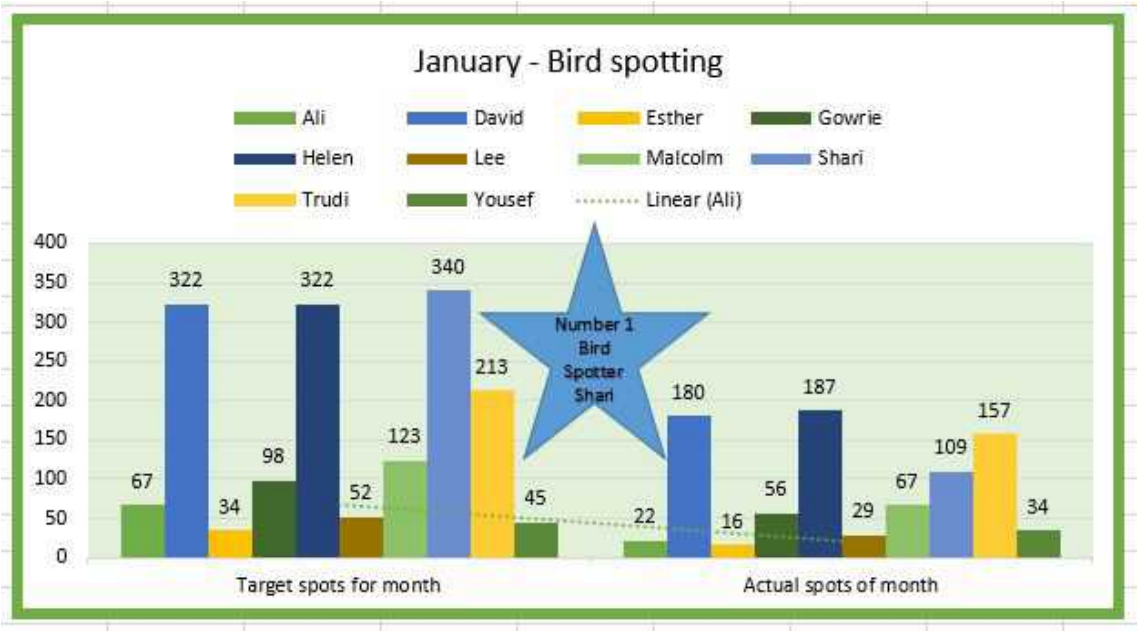
WordArt styling

WordArt Styles tools can be used to add effects to the labels within the chart.



Shape styling

The **Shape Styles** group can be used to change the border image of objects in the chart.



Practice task 13

Open the **Hemline Miller January** report document you created in Practice task 12. Format the charts (using bright colours, gradients and textures) to include relevant titles and labels as follows:

1. Column chart, include the title '**January – sales**'.
2. Scatter chart, include the title '**January – customer numbers vs quantity sold**'.
3. Pie charts, including relevant titles for sales, customer numbers and quantity sold, as well as data labels showing percentages of total.

Summary

1. A chart is a graphical representation of selected worksheet data.
2. Charts are visually appealing and make it easy to display comparisons, patterns and trends in data.
3. The type of chart you choose to display data depends on organisational and task requirements.
4. When you insert a chart, three Chart Tools tabs appear – Design, Layout, and Format.
5. Each component of a chart can be formatted and adjusted as needed.

Learning checkpoint 4
Produce simple charts

This learning checkpoint allows you to review your skills and knowledge in producing simple charts.

Part A

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

2. Use the data below to create charts as follows (save the spreadsheet to an appropriate location and name it **Jim's Booksellers – January sales comparison**):
   - Pie chart to show **percentage achieved** for individual sales consultants.
   - Column chart to show **target** and **actual** sales figures for individual sales consultants.
   - Scatter chart to show clusters of **actual** with **percentage achieved**.
   - Line chart to show a comparison of **target** and **actual** for individual sales consultants.

To calculate the percentage in the last column you need a formula that divides the actual sales by the target sales, then multiplies that answer by 100.

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

Workplace learners can either complete this assessment using a spreadsheet with charts that has been produced in the workplace or they can use the instructions below to complete the assessment.

1. Open the spreadsheet **Jim's Booksellers – January sales comparison** which you made in Part A.
   Format the charts 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 pie and scatter charts.
   - Add gridlines, as appropriate, to the charts.
   - Format the plot area using a gradient, as appropriate.
   - Add a shape to the pie chart to identify the highest-achieving sales consultant.
   - Use WordArt Styles to format chart titles.
   - Use Shape Styles to apply dark borders around the charts.
   - Preview your charts before printing on individual pages.

Topic 5
Finalise spreadsheets

You must ensure you are producing quality spreadsheets and charts that adhere to organisational and task requirements. The final spreadsheet and chart must be thoroughly checked and proofed before completion to ensure the correct message and company image are delivered to the audience. Print previewing your spreadsheet and chart before printing can save time and ensure the necessary adjustments are made before you print.

When preparing spreadsheets and charts you must comply with the required time lines and job instructions. If you believe that either the time line or job instructions need to be altered, you should discuss this with your supervisor or the person who has requested the work. Many businesses have strict deadlines for completing tasks. Failing to meet deadlines can have an impact on other tasks and teams within the organisation.

It is easier to access spreadsheets that have already been created by using appropriate file referencing and saving options. Saving files in the correct location is important as it ensures all interested parties can access the spreadsheet quickly and easily. It also saves time and improves on business efficiency.

In this topic you will learn how to:

5A Preview, adjust and print spreadsheets

5B Meet data input time lines and quality requirements

5C Name and store spreadsheets and exit applications safely

5A Preview, adjust and print spreadsheets

Previewing lets you check spreadsheet accuracy, layout, presentation, consistency and readability. It will save time and improve efficiency. It reduces paper wastage.

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 enough to give the desired results.

Because there are so many files created in businesses, and because staff change, you need to give files useful names and store them in the right location. This makes it easier for people to find them later on.

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 also allows you to check layout and overall appearance.

Preview and adjust spreadsheets

Previewing spreadsheets before printing is good practice and you should always do so. As mentioned, previewing lets you check spreadsheet accuracy, layout, presentation, consistency and readability. It will definitely save time and improve efficiency. By not printing until you are certain the spreadsheet is ready, you will save paper, power and print toner.

Print Preview function

Print Preview shows the selected spreadsheet or chart. If there is a chart as an object in the spreadsheet it will appear as above. If, however, you have clicked on the chart object and selected it, Print Preview will not display the data, it will only show the chart. Excel assumes that if you have selected the chart only, 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 the chart.

If the chart is a separate sheet in the workbook and not an object with the 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 press each worksheet name with your mouse before selecting Print Preview.

Be careful if 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 name. This will then become the active worksheet.

Print Preview

To preview your spreadsheet or chart, go to the File tab and select Print.

The preview will be visible in the right-hand side panel.

Print tools

From the Print screen you can do the following:

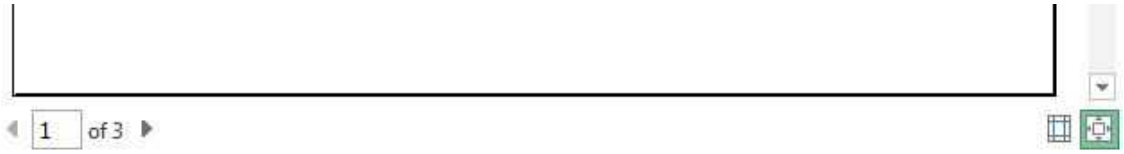
- print the workbook, spreadsheet or selection
- enter the number of copies you want to print
- select double-sided printing
- alter the orientation from portrait to landscape, choose the paper size, adjust margins and scaling.

Further Page Setup options are available by clicking on the link below the Scaling drop-down menu.

Print tools

Below the Print Preview there are buttons which 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 by using your mouse.



To return to your Excel workbook, select the Back Arrow.

To preview margin settings:

1. Open a spreadsheet.
2. Preview the spreadsheet.
3. Use the Zoom button to view the data closer up.
4. Check the page orientation is set to landscape.
5. From the Page Setup dialog box select the Margins tab and centre the data horizontally and vertically.
6. Use the Show Margins button to preview margin settings.
7. Close the preview.

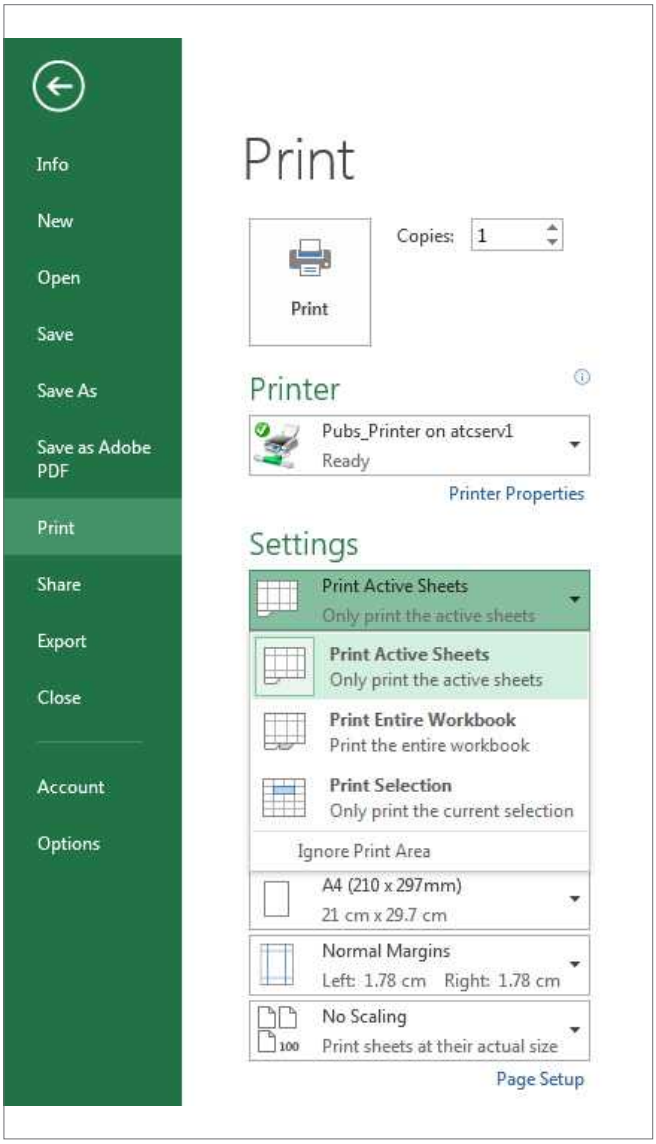
Print spreadsheets and charts

Before printing, you need to decide what it is you want to print – specific sheets, the entire workbook, a selection of data or possibly just a chart.

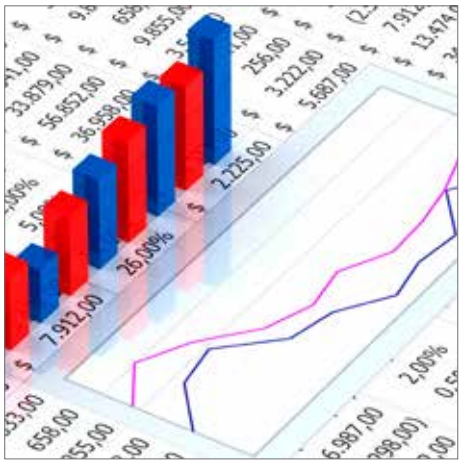
When printing charts, you need to consider whether you want to print the chart as an object in the spreadsheet or whether you want the chart printed on its own page.

Print the active worksheet

1. Open a spreadsheet file.
2. Go to the File tab and select Print.
3. From Page Setup select Scaling of 135 per cent. Scaling allows you to adjust the size of the print-out, making it larger or smaller on the printed page.
4. 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. 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. When you are ready to print, click the Print button.



Printing formulas



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

When in Print Preview, use **Fit to** in Page Setup to fit your worksheets on one page or a number of pages.

Print a selection from a worksheet

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.

1. Open a spreadsheet.
2. Select the cells you wish to print.
3. From the File tab select Print.
4. From the first drop-down menu under settings choose Print Selection.
5. The preview should now look similar to the following example.

Store	*Sales*
Chadstone	78009
Bundoora	95080
Wangaratta	120708
Semour	110920
Newport	102787

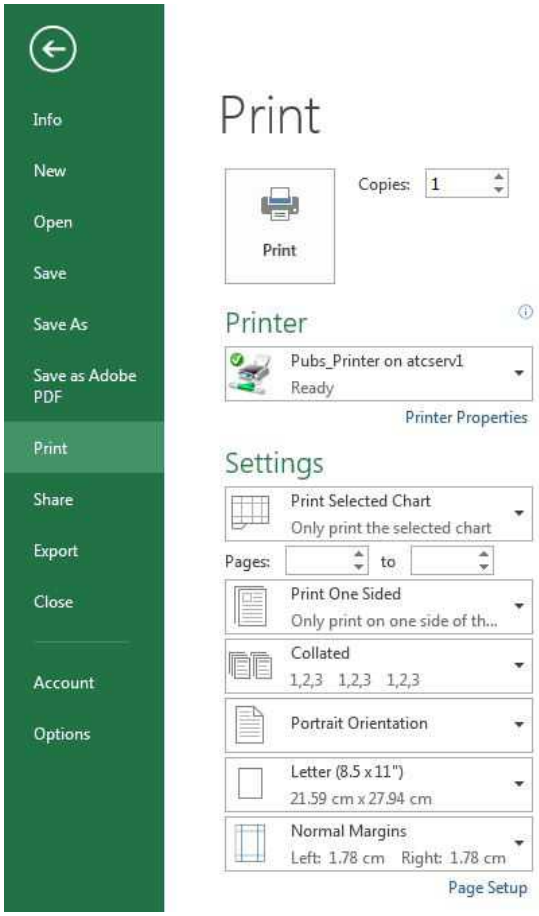
6. Click the Print button.

Print a workbook

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.

Print a chart

1. Open a spreadsheet file containing a chart.
2. Select the chart by clicking on it. Because this is selected only the chart will be previewed and not the data in the spreadsheet.
3. From the File tab, select Print. Your chart will be displayed exactly as it will be printed. Click the Show Margins button and manually adjust the left and right margin by clicking and dragging with your mouse.
4. 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.



5. Save and close the file.

You can adjust the size of the print-out by altering **Adjust** to more than 100 per cent of normal size in the Page Setup dialog box. Page Setup is available when you select Print from the File tab.

Follow organisational requirements for printing

A workplace normally has standards for staff to adhere to when printing. These could include using recycled paper when printing for the first time, which enables you to check a draft copy before printing the final copy. A workplace practice of 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 may be required to print a master copy and then use the photocopier to make additional copies. This is particularly important with longer spreadsheet reports and charts, as you may be able to use the double-sided copy option available on the photocopier.

When preparing to print you need to ask yourself the following questions:

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

Practice task 14

The following tasks require you to access the Hemline Miller January report you worked on in previous practice tasks.

1. Open the file Hemline Miller January report.
   - Preview the spreadsheet. Check the appearance of the data and charts and make any necessary adjustments before printing.
   - Print one copy of the spreadsheet.
   - Close the file.
2. Open the file Hemline Miller January report.
   - Select cells A4 to B9 – this will select only the store and sales data.
   - Print only the selected data.
   - Close the file.
3. Open the file Hemline Miller January report.
   - Select the column chart only.
   - Print the chart.
   - Close the file.
4. From your Hemline Miller January report spreadsheet, print out the Store and Sales columns. Adjust the size of your selection until it is 150 per cent of normal size.

5B Meet data input time lines and quality requirements

Getting the data ready and then entering it into your spreadsheet may actually be quite a significant task. There's little point in having a spreadsheet ready three days before a meeting if it is going to take a week to collect, check, enter and re-check the data.

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

Meet time lines

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

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. Careful planning is necessary 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 allot enough time to have them checked by your manager.

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

Prepare a checklist

Preparing a checklist can help you plan a work task. Creating spreadsheets will become easier once you are familiar with your organisation's requirements. Look at the following example of a checklist.

Task	Deadline	Requirements	Completed
Create a spreadsheet for manager	Tuesday 20 March	• Collect the product data • Check the data • Enter the data • Proofread the data • Format the spreadsheet using 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	✓

Organisational time lines

You will often be required to meet specific deadlines in a workplace. You may be instructed by your supervisor as to the deadline for completing set tasks; for example, preparing a draft summary report by 2.00 pm. You may also have regular deadlines for common tasks such as on a monthly basis, creating a report of customers who are overdue in paying their invoices.

You may find you have conflicting work priorities and time lines. 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.

Achieve time lines

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

If you are asked to complete a task, always ask what the deadline is. If you have a high workload at present, ask if the deadline is definite or able to be negotiated. In many cases, there will be room for negotiation. If it cannot be negotiated, explain to the person making the request, or discuss with your supervisor, your conflicting priorities. Try to work out a happy medium or see if they are able to offer some additional assistance for you to meet other deadlines. Your supervisor may be able to pass some of your other work onto another colleague to complete.

Always ensure that the time line set is realistic and achievable and, if there are any problems, that you discuss these with your supervisor or the person who requires the spreadsheet.

Accuracy of data

The quality of the outputs from your spreadsheets will depend on the quality of the data going into them. Remember 'GIGO' – garbage in, garbage out?

You must ensure that the data being entered is good enough to do the job required; for example, if the manager wants percentages to the nearest 1 per cent and your data is very rough, then the answers you provide may be meaningless.

Not only does the data have to be accurate enough, it also has to be entered accurately.

Practice task 15

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, being quite easy-going, said 'no worries' and 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. The current system provides information in a folder and is more of a paper trail of information. Crystal realised she needed a lot more time to compile the information for her supervisor.

1. What should Crystal do?

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

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

4. What does the task actually require Crystal to do?

5C Name and store spreadsheets and exit applications safely

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 or place of study.

When you have a spreadsheet stored in a folder, it must have a unique name in that folder. 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, ask your supervisor.

When closing Excel, always follow procedures and exit correctly. This ensures the data you have entered into the spreadsheet doesn't become corrupted and unusable the next time the spreadsheet is used.

Name your spreadsheet

As well as placing folders and files in the appropriate place, you also need to give them appropriate names. Naming methods 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 2013 and 2010, all spreadsheets are saved with the extension .xlsx. For earlier versions of Excel (that is, 1997 to 2003), the extension is .xls.

Create a spreadsheet to be used by previous versions of Excel

Excel 2013 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.

Authorised access

Many organisations have protocols in place whereby 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 the use of passwords. Passwords are commonly used for spreadsheets that contain confidential, private or sensitive information; for example, profit analysis or staff information. Passwords can be used to limit access to opening spreadsheets or to limit the ability to modify information in the spreadsheet. Follow the steps below to place a password on a spreadsheet to limit access to opening the spreadsheet.

1. Open a spreadsheet.
2. From the Office button, select **Save As**.
3. From the **Save As** dialog box, select the Tools button.
4. Select **General Options** from the available menu.
5. Type in a password to open (ensure the password you choose is one that you will easily remember), and select **OK**.
6. You will return to the Save As dialog box, select the Save button. (If an error message appears stating that 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.)
7. Close the spreadsheet.
8. Practise opening the spreadsheet. You will need to enter your password to open it.

Organisational policy for backing up files

Many organisations have set procedures for the backup of files. In many large organisations this is administered through the information technology 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 backup files. This may be done on a daily or weekly basis. You may have to backup files to CD or to another disk drive. If this is the case, check with your supervisor for the relevant backup procedures.

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 and you still want to be able to retrieve previous documents.

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

Organisational policy for filing hard copies of spreadsheets

It's 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. Hard-copy spreadsheets need to be managed well since storage space is often scarce and valuable. Old or superseded spreadsheets must be destroyed on a regular basis. Retention schedules list the time frame 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 or place of study.

Storage security

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 is a computer that delivers information and software to other computers linked by a network.

To enable staff to log on to a server, the systems administrator issues 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.

Safeguard data

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 solutions to backup information on a database. If any damage occurs to the server, or the premises, a complete information backup is available.

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. Ask about your organisation's policies regarding the storage and security of Excel files. The following case study shows the importance of always backing up data.

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 changes.

Here are some precautions you can take to prevent data loss.

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, you need to 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 an up-to-date anti-virus, anti-spyware and firewall program to protect it against malware from the internet. Check also that it has the latest security upgrades.

Practice task 16

Read the case studies, 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 had completed several reports for different departments within the organisation. He had to save each of them in a different location, and it took him a while to work out where they all belonged. He wasn't sure if he had 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.

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.doc and march2.doc.

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

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

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

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

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

Summary

1. You should always preview your work before printing.
2. Make sure you have formatted, checked all formulas and functions and proofread your spreadsheet before printing.
3. Working within a designated time line means you must plan your work.
4. Collecting, checking and entering data can be a big part of the task.
5. It is possible to print a whole spreadsheet or parts of a spreadsheet.
6. A chart can be printed on its own or as part of a worksheet.
7. You need to understand your organisation's policies and procedures on saving and storing spreadsheets.

Learning checkpoint 5
Finalise spreadsheets

This learning checkpoint allows you to review your skills and knowledge in finalising spreadsheets.

Part A

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

Rainfall in millimetres		
	2014	**2015**
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 **Temperature 10–11**.
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	
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 name: **Temperature 10–11** Saved to appropriate file location – drive and folder	
Print Preview	Print Preview to check data, layout and overall presentation Landscape orientation Spreadsheet data and chart on same page Any required adjustments to content, layout, appearance made Print Preview again	

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Task	What to check for	✓
Print	Print single page to selected printer	
Exit Excel	Exit Excel ensuring all work is saved appropriately	
Adhere to task requirements	Followed instructions End result: One page print-out – spreadsheet data and chart, professionally presented	
Meet designated time lines	Able to meet designated time line (one hour) or as negotiated with workplace manager Negotiate extension to time line if needed	

Part B

Write down your answers to the following questions:

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 time lines?

4. What do you do to 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 **Our Office 2 U – 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:

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

Make other appropriate formatting choices to ensure the spreadsheet and chart are professionally presented. These should include:

- Landscape orientation
- Centring the spreadsheet on 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 **Our Office 2 U – January stock supply**
- exit the program ensuring that all files have been saved as appropriate.