

FSKNUM016

Interpret, draw and construct
routine 2D and 3D shapes for work

Release 1



Learner guide

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construct routine 2D
and 3D shapes for work**

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Aspire Version 1.1

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Kathrin Colgan is an education manager in the TAFE sector who has deep insight into VET education delivered with an LLN focus. She has produced resources for the IBSA FSK Implementation Project Business Services. She has a Masters of Education and has worked closely with Industry Skills Councils and Industry Training Advisory Boards to improve language, literacy and numeracy within their industries.

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FSKNUM016

Interpret, draw and construct routine 2D and 3D shapes for work

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Before you begin

This learner guide is based on the unit of competency *FSKNUM016 Interpret, draw and construct routine 2D and 3D shapes for work*, Release 1.

How to work through this learner guide

Your trainer or assessor will tell you which parts of the learner guide you need to read, and which activities you need to finish. The learner guide has the following parts.

Part	How you use it
Learning content	Read each topic. If you do not understand something, talk to your trainer.
Examples	This learner guide has examples of completed documents that may be used in a workplace.
Learning checkpoints	Complete learning checkpoints to make sure you understand what you have read. Your trainer will tell you which activities to do.
What you have learnt	At the end of the learner guide, there is a list of what you have learnt. You can use this to check if you are ready for the final assessment.

Words to remember

As you read the learner guide, use this section to write down words you need to remember.

There is a space for you to write the word and a space for you to write down what the word means.

This will help you to learn the words.

Word	What it means



Your story

Today is your induction at the **Sorton Boutique Cheese Farm**. There are lots of different processes used to make cheese, including operating the machines, placing the cheese in moulds for ripening and packaging the cheese for storage.

Over three days, you will undertake multiple jobs to see which suits you best.

Teresa is your supervisor and she tells you about the different jobs you will need to do in your induction and how they help the cheese making process.

Your tasks

Learn about your tasks below.



Cheese making

Your tasks include:

- reading instruction manuals and job sheets for tasks
- collecting and choosing the correct mould for each cheese
- turning the cheeses and storing them at the correct angle so they mature correctly
- moving cheese from room to room and adjusting shelving.



Packing and labelling

- packing and labelling the cheeses for orders
- constructing boxes to store the cheese
- designing new box shapes to suit the different cheeses
- explaining diagrams to others
- following the instructions in diagrams.



Day 1

Cheese making

When you arrive for your induction, Teresa shows you where you are working. The farm has two rooms called 'Cheese Caves' that are used to store and mature newly made cheese.

The room has various mould shapes for different kinds of cheeses. The cheeses are stored on wooden shelves while they 'mature'.

When the cheese is made, Teresa selects the mould shape for the cheese. During the maturation process, the cheese needs to be turned and placed on the shelf on the correct angle so the flavour matures evenly throughout the cheese.

Your job will be to select the correct mould for the cheese. You then must place the cheese at the correct angle on the shelf using geometric equipment.

2D shapes

Two dimensional (2D) shapes are a flat shape you usually see drawn on a plan or map. It has a length and width but no depth.

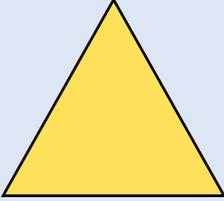
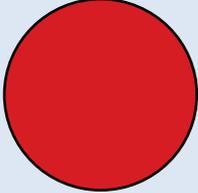
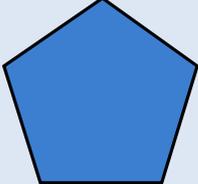
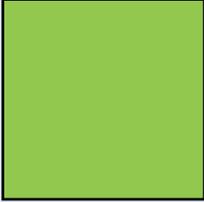
There are many common 2D shapes, such as a square or triangle. They are called regular shapes or regular polygons; polygons are made up of shapes where all the sides and angles are of equal length. We often see them in our community on road traffic signs and animal crossing signs.

There are several reasons for using the correct shape in the workplace. Different shaped signs, for example, display different types of information. Therefore, it is important to know that:

- a triangle has 3 sides
- a quadrilateral has 4 sides
- a pentagon has 5 sides
- a hexagons has 6 sides
- an octagon has 8 sides.

At the Sorton Boutique Cheese Farm, Teresa needs you to recognise the moulds for the different cheeses. You must also be able to read the instruction sheet correctly.

The following shapes are used to mould the following cheeses:

Shape	Type of cheese
	Wasabi cheese
	Cheddar cheese
	Brie cheese
	Goat's cheese

3D shapes

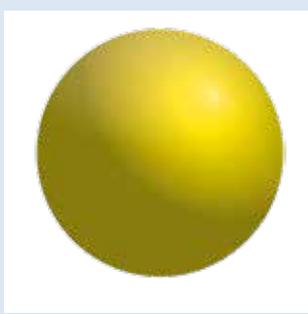
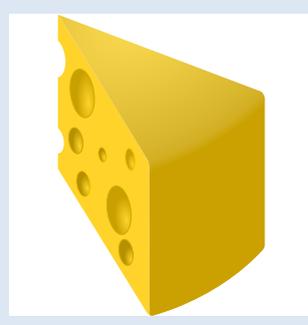
A three-dimensional shape is called a **solid**. It can also be expressed as a **3D** shape. These shapes are usually used to show the **width** as well as the **height**, **length** and **depth** of a shape. We often see solids in artists' sketches or floorplans.

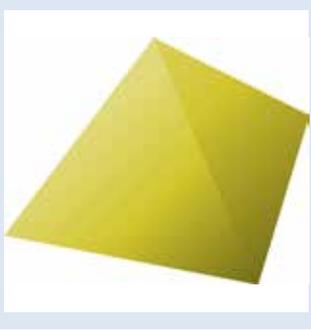
The most familiar solids we encounter are spheres (e.g. tennis balls) and cubes (e.g. dice).

There are many different types of three-dimensional (3D) shapes: prisms, cubes, pyramids, spheres, cylinders, etc.

In the workplace, solids are used in plans and drawings to provide a visual example of the stock and equipment in a room. This provides us with a clearer idea of how much space certain objects take up.

The following table explains how the following shapes may be used in the workplace:

Shape	Workplace application
	<p>Sphere</p> <p>Used to mould certain cheeses into small balls before they are coated in breadcrumbs to be fried later.</p>
	<p>Prism</p> <p>Used to mould individual servings of swiss cheese.</p>

	<p>Cube</p> <p>Used to create boxes to store cheese for shipping purposes.</p>
	<p>Pyramid</p> <p>Used to create small cream cheese moulds to make the shapes easier to coat in chocolate.</p>
	<p>Cylinder</p> <p>Used to create moulds that are filled to create mozzarella sticks.</p>

At the farm, you will need to work closely with Teresa to plan and store each cheese mould as best as possible to reduce clutter in the Cheese Caves. This will ensure there is no wasted space.

Perimeter

Shapes can be estimated and measured to find the size of an object. These are called the dimensions of the shape.

A perimeter is the total distance around a shape; to determine this, we add together the length of all the sides to find the total.

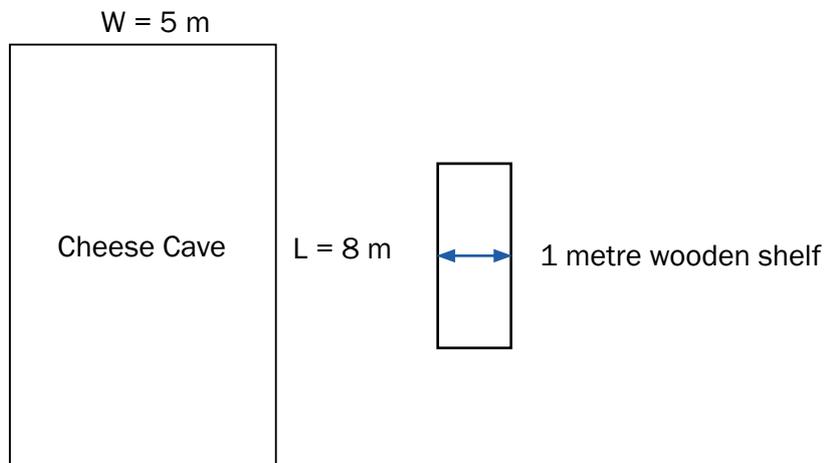
You will need to be able to measure the perimeters of multiple objects; this is because safe storage practices are a key aspect of your job. For example, you will need to know:

- the perimeter of the Cheese Caves and shelves to estimate how much cheese can be stored in each room
- the perimeter of each cheese mould so it can be correctly stored on the shelf.

At Sorton Boutique Cheese Farm, you need to be able to estimate the size of the Cheese Cave by looking at the shape of the room and then measuring the perimeter. Estimating involves making an educated guess regarding measurements, rather than completing a thorough calculation.

Once you have completed your estimation, you then need to formally measure the room and calculate how many 1 metre wooden shelves will fit in the room.

However, it is important to remember that the door to the room is 1 metre wide. Therefore, in order to be able to open the door, 1 metre of space needs to be clear. This means you must subtract (minus) 1 metre from the total perimeter when working out the total number of shelves to fit in the room.



$$5 + 5 + 8 + 8 = 26 \text{ m}$$

Therefore, the perimeter of the room is 26 metres.

$$1 \text{ m} \times 26 \text{ m} = 26 \text{ m}$$

$$26 \text{ m} - 1 \text{ m} = 25 \text{ m}$$

This means you will need 25 shelves in total to fill the room (remember that you need to keep 1 metre free for the door).



Area

Shapes that are **flat or 2D** have an total amount inside their perimeter. This is called the **area**.

An **area** means we want to know how much room there is inside a certain shape. A common shape you will need to measure is a rectangle. When measuring its area, you are working out how many squares can fit in to the perimeter of a shape. You may need to measure in millimetres, centimetres, metres or kilometres, depending in the size of the object you're measuring.

We use a little number 2 after our area measurement to describe square metres. The 2 is placed as a superscript next to the measurement unit like this: 15 m².

In your workplace, you may need to work out how much stock would fit in the shelving inside a room.

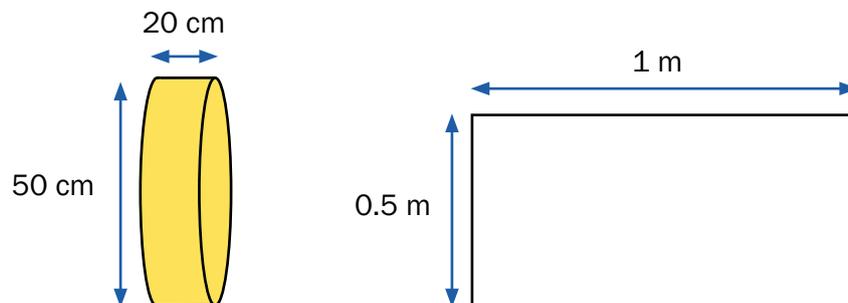
For example, Teresa wants you to measure the area of the Cheese Cave shelving to see how much cheese can fit on each shelf:

- Each piece of cheese is stored vertically and is 20 cm wide and 50 cm tall.

$$20 \times 50 = 1000 \text{ cm}$$

- Each shelf is 1 metre wide and 0.5 metres tall.
 - You then must convert the metres to centimetres by multiplying each value by 100.

$$100 \text{ cm} \times 50 \text{ cm} = 5000 \text{ cm}$$



You then have to divide the total shelf area by the total cheese wheel area.

$$5000 \div 1000 = 5$$

Therefore, 5 cheese wheels will fit inside each shelf.

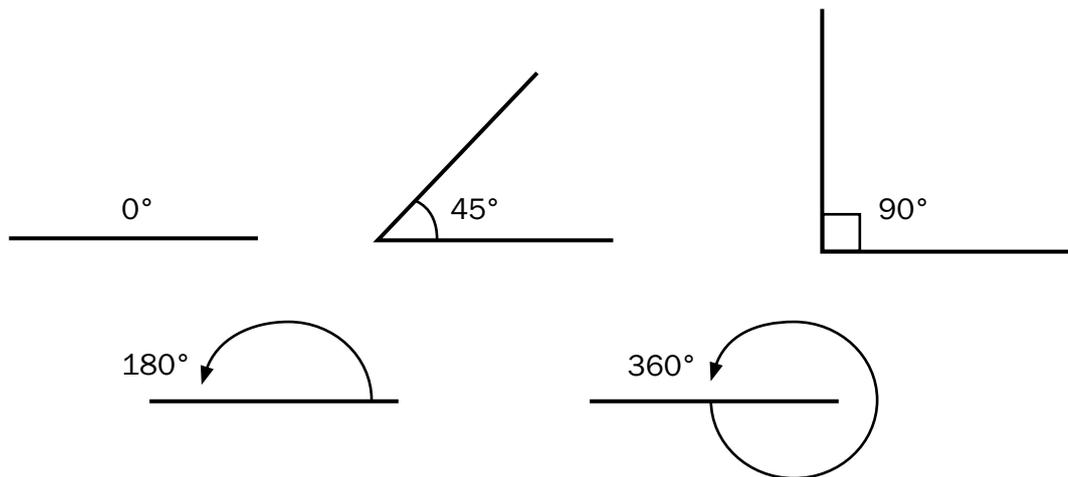
Angles

Angles are used to make objects stronger as well as measure items to ensure they work effectively. Angles are used in many workplaces, like plumbing, building and architecture.

Angles are measured using degrees. Degrees are a mathematical unit that measure the rotation of something along an arc shape; for this reason, they are sometimes referred to as 'a degree of arc'. The degree symbol is a little circle placed after a number. For example, 90° means 90 degrees.

In your workplace, you will need to know many types of angles:

- A **full-turn** in an angle is 360° (that means a **full-rotation**).
- An **acute angle** is between 0° and 90° .
- A **right angle** is exactly 90° .
- A **straight angle** is exactly 180° .
- An angle between 90° and 180° is called an **obtuse angle**.
- Between 180° and 360° the angle is called a **reflex angle**.



Teresa needs you to place some hard cheeses at a 90° angle or at an obtuse angle on the shelf so they don't touch each other. You also need to give the cheeses either a half-turn or a full-turn during the maturation process.

Geometric measuring tools

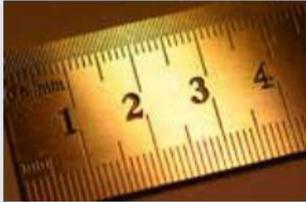
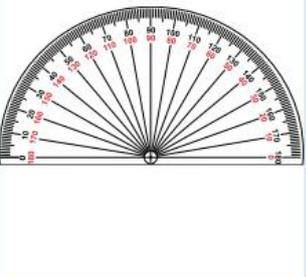
When drawing angles and other shapes, we use geometric tools or geometric software.

Geometric tools are familiar items you likely encountered during your school years: items like a compass, protractor and, of course, a ruler. These tools are used to draw shapes and create angles.

There are also several computer programs which create and move 2D and 3D shapes, draw angles to generate designs. At the cheese farm, the technology is used to design the layout of the cheese rooms as well as used to design safety signs for staff.

It can take some practice to learn how to use the software program correctly. You may ask for some help from a supervisor who knows how to use the program. Each software program will have instructions you can use to help you construct your design.

As a new worker at the cheese farm, you need to learn how to use the right tools to create 2D and 3D shapes as well as angles. You will use a protractor, ruler and compass. Each of these have a specific purpose, so you must understand how to use them safely and correctly. This is explained in more detail on the following page.

	<ul style="list-style-type: none"> • Rulers are used to measure height and length. • They are typically marked with small lines measuring distance in 1 cm intervals (many also display millimetres). • You use the ruler to measure the cheese to ensure it can be stored correctly on the shelves.
	<ul style="list-style-type: none"> • A compass is used to measure and draw circles. • The point is very sharp, so you must be careful when using this item. • You use the compass to make sure the moulds are a circle shape.
	<ul style="list-style-type: none"> • A protractor is used to measure and mark angles. • A protractor comes in many shapes and sizes, but the most common you will encounter is shaped in a semi-circle. • You use the protractor to check the angles of the cheese to make sure the cheeses are set up correctly for maturation.

The equipment also needs to be kept clean and wiped after each use. This is a safety rule when working with food.

What has happened on Day 1?

On Day 1 at the Sorton Boutique Cheese Farm, you have learned about:

- 2D Shapes (polygons)
- 3D Shapes (solids)
- Perimeter
- Area
- Angles
- Geometric measuring tools.

Learning checkpoint: Day 1

1. What 2D shape has five sides. Tick the correct answer.
 - Octagon
 - Pentagon
 - Hexagon
2. Which of the following is a common feature of a polygon? Tick the correct answer.
 - All angles are equal
 - Two sides of equal length
 - All sides of equal length and angles of equal size
3. Which of the following are 3D shapes? There are **two (2)** correct answers. Tick the correct answer.
 - Quadrilateral
 - Prism
 - Cube
 - Triangle
 - Decagon
4. Which three elements are typically measured first on a 3D shape? Tick the correct answer.
 - Width, length, size
 - Width, depth, colour
 - Width, height, length
5. Teresa asks you to measure the inside perimeter of the cheese room. What are you measuring? Tick the correct answer.
 - Area
 - Height
 - Length

6. Teresa wants the cheeses to be placed on the shelves at an angle between 90° and 180° . What is this type of angle called? Tick the correct answer.
- Right angle
 - Obtuse angle
 - Reflex angle
7. Teresa asks you to rotate the cheeses a full turn. How many degrees is this? Tick the correct answer.
- 360°
 - 90°
 - 45°
8. You need to measure the angle of the cheeses on the shelves. What instrument will you use? Tick the correct answer.
- Compass
 - Ruler
 - Protractor
9. The cheese farm has a computer software program used for designing the layout of the cheese room. Teresa shows you how to draw a simple solid object.
- Which of the following are solid objects? There are **three (3)** correct answers. Tick all the correct answers.
- Rectangle
 - Octagon
 - Cylinder
 - Sphere
 - Pyramid



Day 2

Packing and labelling

Today, Teresa shows you the packing room. She shows you how to collect and pack boxes with different cheeses in order to prepare customer orders.

You have to pack the box and place a label on each box showing the type of cheese; this involves selecting the best box to fit the different shaped cheeses as well as how to pack the cheeses inside correctly.

Solving a problem

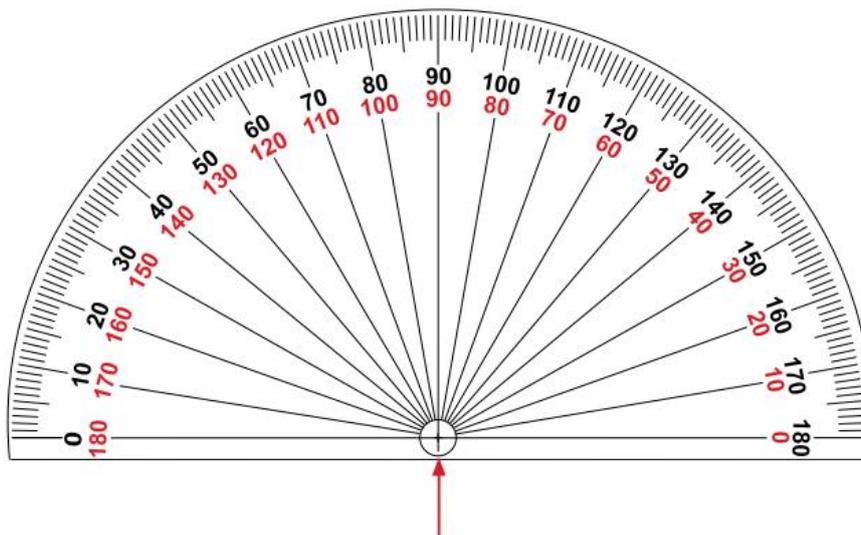
Depending where you work, and what your tasks are, you may need to work out how to solve a problem involving shapes and angles. Some problems will include measuring and completing a calculation. You may need to think about whether there are different steps you need to do.

When you solve a mathematical problem, like these, you need to:

- **understand the problem** and decide what maths to do
- **estimate** the answer; this may be a measurement, calculation or both
- **measure** and do any **calculations** that are required.
- **check your answer**
- **write and talk** about the answer; you may also need to talk about how you measured and did the calculation.

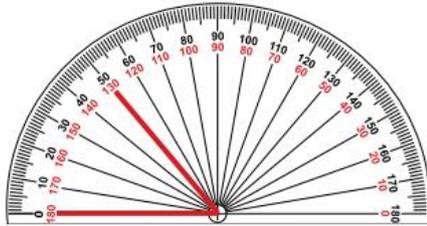
Measuring angles

We use a protractor to measure angles from 0° to 180° . The protractor is a semi-circle tool with numbers running from end to end, starting from 0° and working around all the way to 180° .

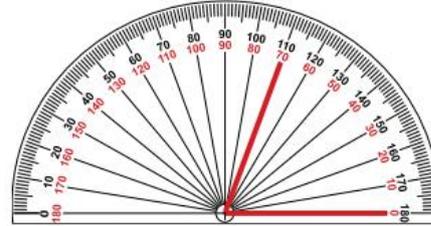


The centre of a protractor is called the vertex.

If you are using a left or right measurement, you always start from zero.



Always start from the zero.
Here you use the outside numbers: the angle is 50°



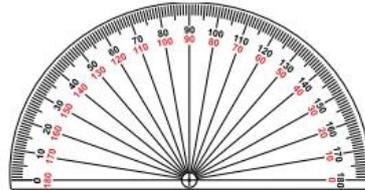
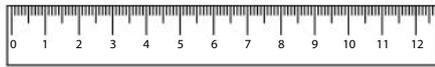
Again we start at zero. Here you use the inside numbers: the angle is 70°

You will need to use the protractor to make sure drawings of rooms and workspaces are correct; this tool will also help you correctly pack stock for customers.

At the Sorton Boutique Cheese Farm, you need to use the protractor to make sure the labels are applied correctly on the boxes. A protractor can also be used to measure the angles of boxes to ensure certain shapes of cheese will fit correctly in the boxes for packaging.

Constructing angles

Sometimes, we need to measure angles to construct the shapes we need. Drawing an angle requires a ruler and a protractor.



We can draw an angle by following these steps:

- Draw a straight line using a ruler.
- Decide if you are using the inside or outside numbers on a protractor.
- Place the point being measured at zero.
- Mark the angle that you need to measure.
- Remove the protractor and draw a line from the vertex to the pencil mark.

For example, you will need to know how to measure an angle when placing the cheeses on the shelf at the correct angle required for maturation.

Area of shapes

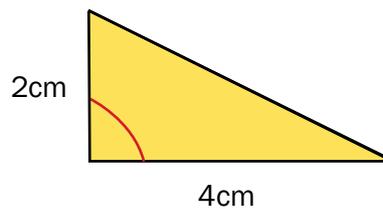
We need to calculate the area of shapes when estimating and planning things for our workplaces. We already know that we can calculate the areas of rectangles by multiplying the base by height.

We also can measure the area of a **2D triangle**. The formula we use is:

$$\text{Area} = (\text{base} \times \text{height}) \div 2$$

This is because a right-angle triangle is exactly half the size of a rectangle with the same base and height.

For example, you might need to calculate the area of cuts of cheese to be packed in a box.



Therefore, the calculation required is:

$$(2 \text{ cm} \times 4 \text{ cm}) \div 2 = 4 \text{ cm}^2$$

At the farm, you will need to pack many boxes with the different cheeses you have labelled. Measuring the area of the cheeses will help with calculating whether they will fit in the box. You may use a calculator if you like.

Writing ratios

Ratios are useful to learn in the context of your job at the cheese factory, as you will often pack multiple cheeses inside multiple boxes. You will therefore need to know how many boxes are required for a specific number of cheeses. Many software programs will express this figure using a ratio.

We calculate a ratio by comparing two numbers. The numbers are separated with a colon which are two small vertical dots that look like this ‘:’.

For example, you might need to explain how many boxes are left compared to how much stock is left.



10 boxes

90 sections

In the example above, the ratio is 10:90, which can also be expressed as 1:9.

At the Sorton Boutique Cheese Farm, you will need to follow procedures that involve ratios to prepare different cheeses.

For example, if a block of cheese requires 35 litres of milk, and the ratio of milk to water is 5:1, then you will require 7 litres of water. This is expressed in the calculation below:

$$35 \div 5 = 7$$

Estimating

We need to use estimation (educated guessing) in some tasks in the workplace to help complete tasks.

Estimating can seem like extra work, and it can be a challenging task. However, estimation is a useful skill that requires us to understand the approximate value of numbers.

Rather than following a rigid formula, estimation asks us to analyse all the elements of the problem and make an educated guess about something. It requires you to apply your previous knowledge and experience to a workplace task.

Before you measure or do a calculation, think about what sort of answer you expect to get by doing a rough estimate.

An estimation is an approximation or educated guess. An educated guess is a guess based on knowledge and experience rather than just a number you think may be right.

You do this by doing a quick and rough estimate of the measurement and calculation to get an idea of what the answer should be. Remember, it is not an accurate answer – just a rough estimate.

When discussing problems using estimation, we can use words and phrases like:

- about
- close
- just about
- a little more (or less) than
- and between

We can achieve an estimation by comparing the size of an object to items we are familiar with in our everyday lives.

Estimation allows us to be able to determine if our answers are realistic. Without estimation skills, we can't determine if answers are reasonably correct.

You will require estimation skills to determine how many boxes would approximately be needed in the next order of stock. You will need to make quick judgments about the amount of space needed to pack the cheese into trucks. Teresa wants you to be able to talk through any estimation with the suppliers, as it is equally important to be able to correctly communicate orders to avoid confusion.

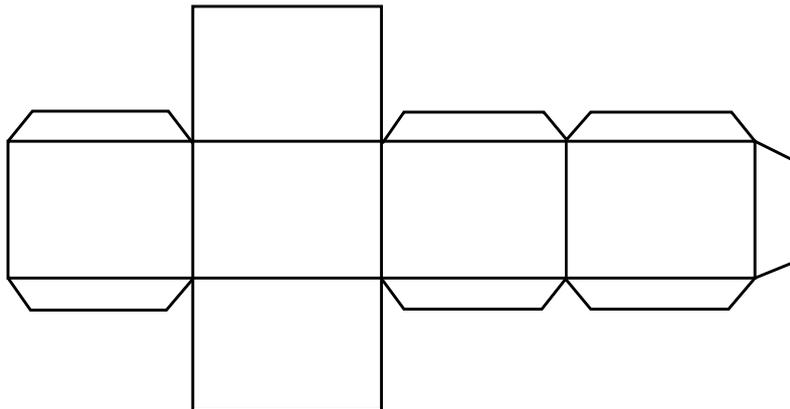


Nets

The Sorton Boutique Cheese Farm uses many different boxes to pack cheese.

They come in a flat shape, and staff must fold them correctly to create the box. For example, the box used to pack the wasabi cheese is a cube shape.

It is made by cutting out a shape from a sheet of cardboard and folding it in the right places, and at the right angles, to create a solid cube shape. The flat shape is called a net. The net begins as a flat 2D shape, and when it is folded and glued together, it forms a 3D shape.



There are some key terms you need to remember when designing a net:

- Face – the flat part of the solid
- Edge – the line where the two segments meet
- Vertex (or vertices) – the corner where lots of faces and edges meet

At the cheese farm, Teresa shows you how to use the computer software program to design new box shapes for different cheese stock. There are several important steps:

- Identify the problem to be solved.
- Draw the net.
- Print a prototype and test if it works.
- Adjust the net if required.
- Trial the net in the workplace task.

Scale drawings

As part of the designing process for new boxes, you may need to create scale drawings. This will ensure the boxes you design are sized correctly for packaging cheese.

Scale drawings are accurate drawings of real objects that are either shrunk or enlarged to accurately portray what the size of something will be in a manner that is easy to reference. We usually see this in a house plan. Because a house is quite large, the size of the house is shrunk to fit on a large piece of paper. This is so it is easy to read and find the information you want.

Scale drawing is shown as a length in the drawing then a (:) and then the matching length on the real object.

For example, something drawn with a ratio of 1:10 would be 1 cm in the drawing and 10 cm on the real object. This is expressed as follows:

Drawing length: Actual length

Because Sorton Boutique Cheese Farm is becoming increasingly popular, they are making more cheese than they did in the past. Teresa wants you to help create a scale drawing of a new cheese room to help the business grow and keep up with the increased demand.



Checking and reflecting on the outcomes of tasks

Reflecting and reviewing skills are an important part of your workplace skills.

When you do calculations, you should always check your answers after you have worked them out. You can do two things to confirm your calculations:

- Check your answer against your initial estimate. It should be similar or close.
- Think about whether your answer seems correct and reasonable.

Use your prior knowledge, experience and common sense to think about whether the measurement seems about right for the situation. If not, does it seem too high or too low? This will help you avoid making similar mistakes in the future.

It is very beneficial to think about what worked well and what could be done better. By reflecting on your work, you can think of ways to improve in your role, such as how to complete your tasks faster or more efficiently. Furthermore, you may consider if the outcome you achieved was suitable for the task it was designed for.

Consider if:

- the result achieved your objective
- the construction or design improves operations.

Reflective questions might include:

- Am I happy with the project?
- What is the most frustrating part?
- How would I do things differently next time?
- What is the best part of my job?
- Which methods or processes worked well? Which didn't, and why?
- Are my drawings/estimations correct?
- Have I double checked my models?
- Have I compared my work with others?
- Does it all relate to what I set out to do?

You may decide to speak to your supervisor and discuss the tasks you have been working on in order to develop design improvements.

For example, does the new design for the cheese room allow more cheese to be stored? Did the box you designed make packing the cheese more efficient? Often, asking questions is the best way to develop solutions.



What has happened on Day 2?

On Day 2 at the Sorton Boutique Cheese Farm, you learned about:

- Measuring angles
- Constructing angles
- Areas of shapes
- Writing ratios
- Estimating
- Nets
- Scale drawings.
- Checking and reflecting on outcomes.

Learning checkpoint: Day 2

1. You use a protractor to measure the angle each label is applied to each cheese. What is the correct way to measure an angle? Tick the correct answer
Tick the correct answer
 - Use the zero on the right of the protractor.
 - Use the zero on the left of the protractor.
 - Measure from the vertex.
2. Teresa shows you how to make a guide for positioning the label on the boxes. It needs to be placed at a right angle. How many degrees is a right angle? Tick the correct answer.
 - 45°
 - 180°
 - 90°
3. How do you calculate the area of a triangle? Tick the correct answer.
 - Length x height = Area
 - Area = length x width
 - Area = (base x height) ÷ 2
4. To work out how many boxes you need to pack an order, you must determine the box to cheese ratio. Which punctuation mark is used to indicate a ratio? Tick the correct answer
 - &
 - :
 - “

5. Teresa wants an idea of how many boxes you can pack in a day. Which words are an example of the type of informal language you might use when giving Teresa your estimation? Tick the correct answer.
- I can pack approximately twenty boxes.
 - I am most sure that I can definitely pack, given my previous work habits, twenty boxes.
 - I don't know, I guess I can pack about twenty boxes maybe.
6. What are the parts of net? Tick the correct answer
- Area, tabs, face
 - Face, edge, vertex
 - Tabs, edge, vertex
7. Teresa thinks the whole packing area needs to be redesigned and wants you to draw a plan. What kind of drawing must you create? Tick the correct answer
- Area drawing
 - Scale drawing
 - Plans drawing
8. Why is it important to check and reflect on the tasks you have completed at Sorton Boutique Cheese Farm? Tick the correct answer
- I can tell everyone how good I am at my job.
 - It improves projects for next time.
 - I can get a pay rise.



Day 3

Following instructions that use shapes

It is your final induction day, and you will be working in the room where the cheese is made. This area uses two machines that mix the cheese; one machine stirs the soft cheese and the other machine churns the milk to make the cheese.

The machines are new, and Teresa asks you to read the workplace manuals to make sure you know how to operate the machines safely and correctly.

Teresa shows you the office where the instruction manuals are kept, and you discuss any queries you have with her. Each manual includes diagrams showing the various parts of the machine as scaled shapes. Each manual also contains step-by-step instructions on how to operate the machines safely.

Formal and informal language

We use formal and informal language when writing and discussing shapes and angles. When you discuss the diagrams and instructions with Teresa, you must use language that is suitable in the workplace.

The language you choose will depend on the purpose or reason for your interaction. When you are discussing the instruction manual, you might use formal language, because you are explaining how something needs to be done to keep everyone safe. Typically, more important matters require formal language.

The purpose of using language may be to:

- inform
- explain
- report
- build.

You must also think about who you are communicating with; this is your audience.

Your audience at Sorton Boutique Cheese Farm includes:

- your co-workers
- the customers
- your supervisor, Teresa.

There are different types of language for different situations. Informal language is when we use relaxed language like “Hi” instead of “Hello”

Formal language uses more specific words and is typically expressed politely. We would say “Enjoy your afternoon”, rather than “see you later!”

As a new employee, it would be advised that you speak formally. This is a nice way to show respect, courtesy and appreciation for the opportunity you have been given.

At the cheese farm, you will typically speak formally with Teresa, but you may be more relaxed when speaking with your co-workers. Though, it is a good idea to speak formally to someone when you first meet them.



Formal and informal language: Shapes and angles

Imagine you must present some information to co-workers regarding work tasks. You have to describe the meaning of the different shapes and angles used in the diagrams.

Here are the different ways you can describe a shape:

Formally	Informally
<ul style="list-style-type: none"> • Draw to scale • Measure the length • Measure the height • What's the ratio • Area 	<ul style="list-style-type: none"> • Free hand • Imagine the sides are • Imagine it is this big • Draw a shape • As large as a

Here are the different ways you can describe angles:

Formally	Informally
<ul style="list-style-type: none"> • Measure from the vertex • Acute angle • Right angle • Obtuse angle • Reflex angle • Use the protractor 	<ul style="list-style-type: none"> • Draw a line from 0 • Straight up and down angle • Full circle angle • Half a circle angle • Guess the angle • About 45°

During your first few days in your new job, it is best to use formal language to describe the drawings.

Describing the process

Recognising and creating shapes and angles involves using a problem-solving process. It is important to record and communicate the results clearly and correctly. You may also need to explain the process you used to get the results.

To do this, you need to choose the specific words and think about your audience when you communicate. You may need to record information or explain it to others that you work with or your supervisor.

Let's think about some of the formal and informal ways to find the answer to problems about shapes and angles.

For example, when we think about the area of shapes, we know the formal process is **Area = $\frac{1}{2}$ (base x height)**. This would be the formal way of writing.

If we write it informally, it might look like this:

- Times the bottom line with the side going up then divide it all by two.

This would be the same if we explained it verbally.

Showing how we worked something out, and explaining informally, demonstrates we really need to understand what we are doing. If your co-workers are unfamiliar with casual terms in the workplace, they may not understand your instructions, which could result in a task being completed incorrectly.

Using formal and informal language also helps us to explain process to co-workers in a simplified way. Some one new to the workplace would need to hear things both informally and formally to cover all their learning.

At the cheese farm, you will write and explain the process for using the new machinery to your teammates, so everyone understands. This means you will create a set of formal instructions that details everything precisely; but you will also create an informal document that can be referenced quickly by your colleagues.



What has happened on Day 3?

On Day 3 at Sorton Boutique Cheese Farm, you have learned about:

- Formal language
- Informal language
- Communicating processes.

Learning checkpoint: Day 3

1. What kind of language would you use to talk with your supervisor? Tick the correct answer.
 - Informal
 - Formal
 - Communication
2. What is an example of an informal way to describe a shape? Tick the correct answer
 - Measure the sides exactly...
 - The shape has a total area of...
 - It looks like...
3. What is an example of formal language to describe an angle? Tick the correct answer.
 - Half-a-circle
 - About halfway towards a right angle
 - An acute angle of exactly 45°
4. Why is it important to be able to explain how you solved a problem? There are **two (2)** correct answers. Tick all the correct answers.
 - To show you understand something
 - To show off to your co-workers
 - To explain the process to others

What you have learned

Well done. During your time at Sorton Boutique Cheese Farm, you have learned about:

- 2D Shapes (polygons)
- 3D Shapes (solids)
- Perimeter
- Area
- Angles
- Geometric measuring tools
- Measuring angles
- Constructing angles
- Areas of shapes
- Writing ratios
- Estimating
- Nets
- Scale drawings.
- Checking and reflecting on outcomes
- Formal language
- Informal language
- Communicating processes.

You are now ready for the Final Assessment.

