

# FSKNUM009

Use familiar and simple metric measurements for work

Release 1



*Learner guide*

**FSKNUM009**

**Use familiar and simple metric  
measurements for work**

Release 1

**Learner guide**

Aspire Version 1.1



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# Before you begin

This learner guide is based on the unit of competency *FSKNUM009 Use familiar and simple metric measurements 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.
Video clips	Where you see a QR code, you can use a smartphone or tablet to access video clips about the content. For information about how to download an app that will read the QR code or for more help, please visit our website: <a href="http://www.aspirelr.com.au/help">www.aspirelr.com.au/help</a> . 
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 first day of work at Murray's General Store. Murray's General Store sells groceries, fruit and vegetables, and take away food. It is also a post office where customers can send letters and parcels.

Molly, your supervisor, shows you where you will be working. Molly shows you:

- where to prepare the takeaway food that is sold in the store
- the coolroom
- the storeroom
- the post office area.

Molly explains that you need to know how to open the store in the morning and close the store at night.

Molly also explains what your tasks are. Tasks are the things you do as part of your job.

Watch this video about your role at Murray's General Store.



## Your tasks

Learn about your tasks below.



### **Open the store in the morning**

Follow the procedure for getting the store ready in the morning for customers.



### **Prepare food**

Make the takeaway food to be sold in the store.



### **Serve customers in the post office**

Help customers when they need to buy stamps or post a letter or parcel.



### **Close the store at night**

Follow the procedure for locking the store at the end of the day.



## Day 1

On your first day working at Murray's General Store your supervisor, Molly, shows you what to do.

Molly shows you around the store as well as the kitchen where you will prepare food for the store.

She shows you the coolroom, where food is stored at a cold temperature. The coolroom is where meat, fruit and vegetables are stored.

Molly also shows you the storeroom, where food that does not need to be chilled is stored.

Molly explains that you will need to open the store in the morning and close the store at night.

## Workplace tasks and measurement

Molly explains that many of your tasks require you to measure different things. Different types of measurements are used for different tasks and in different workplaces. For example, if you work in a:

- hardware store, you may measure length
- fruit store, you may measure weight
- kitchen, you may measure ingredient portions and cooking temperatures.

Molly explains that it's important to measure carefully and accurately to ensure you and the customers are safe. It also guarantees you give the customers what they pay for and helps to make sure you prepare delicious food.

At Murray's General Store, you measure quantities of ingredients. Quantity is the amount of something. For example, you need 500 g (grams) of cabbage to make coleslaw. Therefore, 500 g is the quantity of cabbage that you need.



## Workplace texts

Molly shows you some of the workplace documents that you will need to read. Many of these have information about measurements.

### Some examples of workplace documents that may have information about measurements are:

- job instructions
- job sheets
- safety guidelines and signs
- an ingredient list

This is an example of the type of document you must read at Murray's General Store.

#### Murray's General Store

##### Food Preparation Guidelines

- Store all food at the correct temperature.
  - Refrigerated items should be stored at 5°C or lower (including dairy products, meat and seafood).
  - Frozen items should be kept at -15°C.
- Cook all food to the correct temperature.
  - When reheating food, it must reach 75°C to be safe.



## Types of measurement

Different types of measurement are used to measure different things.

### You may need to measure:

- dimension (length, width, height or breadth) – for example, the length, width and height of a parcel
- mass or weight – for example, how much a bunch of carrots weigh
- capacity or volume – for example, how much water a jug holds
- temperature – for example, how hot the food is
- time – for example, how long the soup needs to cook for.

Each of these different types of measurements is measured in different units.



## Maths language and measurement

In Australia, most things are measured using the metric system. The metric system uses some common prefixes for different measurement units. A prefix is a group of letters that precedes a word to form a new word.

Prefix	Meaning	Example
<b>Kilo</b>	One thousand times – 1,000	<ul style="list-style-type: none"> <li>• Kilogram – 1,000 grams.</li> <li>• There are 1,000 grams in a kilogram.</li> </ul>
<b>Centi</b>	One hundredth of – $\frac{1}{100}$	<ul style="list-style-type: none"> <li>• Centimetre – <math>\frac{1}{100}</math>th of a metre.</li> <li>• There are 100 centimetres in a metre.</li> </ul>
<b>Milli</b>	One thousandth of – $\frac{1}{1000}$	<ul style="list-style-type: none"> <li>• Millimetre – <math>\frac{1}{1000}</math>th of a metre.</li> <li>• There are 1,000 millimetres in a metre.</li> </ul>

Some prefixes show the units are larger, like kilo. Others, such as centi, show the units are smaller. You'll find out more about these in the next part of the Learner guide.



## Length

Length may demonstrate an object's or place's:

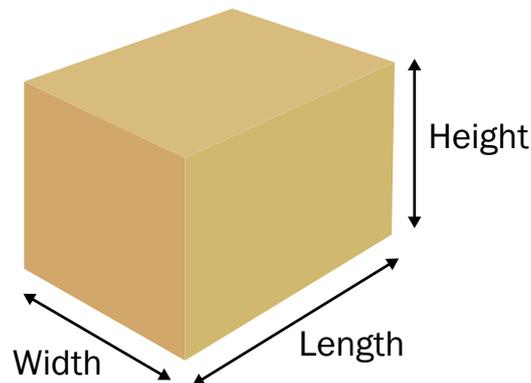
- length
- width
- height
- depth.

Depth and height are often the same, but you refer to each in relation to different things. For instance, you talk about the depth of the water and the height of a box.

You usually measure length in:

- kilometres (km)
- metres (m)
- centimetres (cm)
- millimetres (mm).

Kilometres are the longest common unit of measurement, followed by metres, centimetres and millimetres.

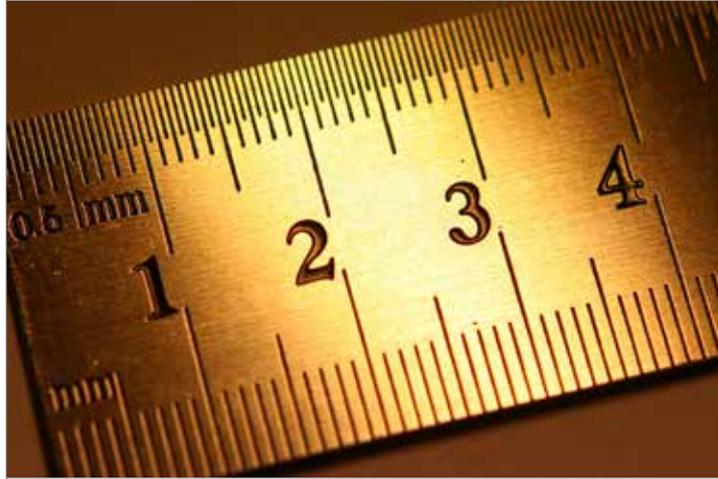


## Units used for measuring length

The table below provides some more information about the different units used to measure length.

Unit	Abbreviation	About the unit
millimetres	mm	<ul style="list-style-type: none"> <li>A millimetre is very thin and about as thick as a plastic card, such as a bank card or train ticket.</li> <li>Millimetres are used in the building industry where it's important to be precise with measurements.</li> </ul>
centimetres	cm	<ul style="list-style-type: none"> <li>A centimetre is also quite small and is approximately the width of an average pinkie finger.</li> <li>Centimetres are often used for everyday items, such as the dimensions of a parcel to be sent by post.</li> <li>1 cm = 10 mm</li> </ul>
metre	m	<ul style="list-style-type: none"> <li>A metre is about the same length as a guitar or the width of a doorway.</li> <li>Metres are used to measure larger things, such as the dimensions of a swimming pool or the size of a room.</li> <li>Sometimes, length is expressed in metres and centimetres. For example, a piece of material is 1m and 20 cm (or 1.2 m).</li> <li>1 m = 100 cm</li> </ul>
kilometre	km	<ul style="list-style-type: none"> <li>Kilometres are used for the distance between towns or how far a plane travels.</li> <li>1 km = 1000 m</li> </ul>

Here is part of a ruler.



It has millimetres and centimetres marked on it. The smaller spaces along the bottom indicate millimetres and the larger spaces in bold indicate centimetres. You will notice that each centimetre is made up of ten millimetres.

## Measuring equipment: tools to measure dimension

There are different ways to measure how long, high or wide something is. Different workplaces will use different equipment, depending on their needs or preferences.

At Murray's General Store, you need to measure parcels that customers want to post.

Here are some examples of equipment that can be used to measure length.

	<p><b>Caliper</b></p> <p>These are used for very accurate measurements. They can be manual or digital. Calipers are usually used in the manufacturing or engineering industries, for example, to measure the thickness of thin metal sheets.</p>
	<p><b>Ruler</b></p> <p>A ruler measures short lengths, typically in millimetres and centimetres. However, many rulers also feature measurements in the imperial system, such as inches. However, in Australia we don't use this, so make sure you use the metric system instead.</p>
	<p><b>Tape measure</b></p> <p>A tape measure is used to measure lengths of up to 30–50 metres. It measures length in millimetres, centimetres and metres.</p>

**Laser distance measurer**

Laser distance measurers use a laser to measure length very accurately. Carpenters and builders often use them instead of tape measures. Some of the more sophisticated ones can be used to measure kilometres.

**Trundle wheels**

A trundle wheel measures lengths in metres. However, it is not as accurate as a tape measure or a laser meter, so it should be used only as a guide.

**Odometer**

An odometer measures the total distance a car has travelled in its lifetime. Newer models can also be programmed to measure the distance driven between two points during each trip.

## Mass or weight

Mass or weight indicates how heavy or how light something is.

Some common units of measurement used to determine weight include:

- grams (g)
- kilograms (kg)
- Tonnes (t or Mg).

Tonnes are the biggest unit, followed by kilograms and grams. Tonnes are only used for very heavy objects, such as cars and trucks – they aren't used very often.



## Units used for measuring weight

The table below provides some more information about the different units used to measure weight.

Unit	Abbreviation	About the unit
gram	g	<ul style="list-style-type: none"> <li>Usually used for items that weigh up to 1,000 g (or 1 kg).</li> <li>Grams are very light and are often used to measure quantities of food. For example, a dry teabag weighs no more than 3 grams.</li> <li>The oranges in this image weigh approximately 550 grams.</li> </ul>
kilogram	kg	<ul style="list-style-type: none"> <li>Measures weight – usually bulkier everyday items that weigh more than 1,000 g.</li> <li>1 kilogram is the same weight as a litre of water.</li> <li>Kilograms are used to measure the weight of larger items, such as bags of cement.</li> <li>These oranges in this image weigh slightly more than 1 kg.</li> <li>If something weighs over a kilogram, we may express the weight in kilograms and grams. For example, 2 kg and 200 g (or 2.2 kg).</li> <li>1 kg = 1000 g</li> </ul>
tonne	t	<ul style="list-style-type: none"> <li>Measures weight – usually very heavy things, such as cars, boats or industrial materials.</li> <li>A small 4WD weighs approximately 2 tonnes.</li> <li>1 t = 1000 kg</li> </ul>

## Measuring equipment: tools to measure weight

Scales are used to measure how heavy something is. Different workplaces will use different types of scales, depending on what they are weighing.

At Murray's General Store, you use digital kitchen scales to weigh ingredients to help prepare food. You also weigh the fresh food customers buy as well as the parcels that customers post.

Here are examples of some different types of scales.



### Analogue kitchen scales

Small, traditional scales used to measure small household items, such as food for recipes. When an item is placed in the bowl, the hand on the display moves around the dial and records how much it weighs.



### Digital kitchen scales

These scales are similar to analogue scales, however, the weight of an item is displayed on a digital display. Digital scales are more reliable to use when you need a very precise weight.



### Bathroom scales

Found in people's homes, often in the bathroom. These scales are typically used to measure a person's weight.

**Commercial digital scales**

Found in shops such as green grocers and supermarkets. Similar scales are used to weigh parcels and large letters at the post office.

**Weighbridge**

These types of scales are incredibly large and are used to measure the weight of large objects, such as trucks and shipping containers.

## Capacity or volume

Capacity is the amount of something a container can hold. For example, the capacity of a glass of water indicates how much water the glass can hold. Volume is a common word used instead of capacity.

Volume is measured in:

- millilitres (ml or mL)
- litres (l or L).

Litres are a larger unit of measurement than millilitres.



## Units for measuring volume

The table below provides some more information about the different units used to measure volume.

Unit	Abbreviation	About the unit
millilitre	mL or ml	<ul style="list-style-type: none"> <li>Measures volume – usually up to 1,000 millilitres (or 1 L).</li> <li>A teaspoon holds about 5 mL. A cup holds about 250 mL.</li> <li>This syringe has the capacity to hold up to 2 millilitres.</li> <li>Millilitres are used to measure small amounts of liquid, such as liquid fertiliser, medicine and canned drinks.</li> </ul> 
litres	L or l	<ul style="list-style-type: none"> <li>Measures volume – usually up to 1,000 litres (L).</li> <li>A litre is the size of a container of UHT milk or bleach.</li> <li>This bottle has the capacity to hold up to 1 litre.</li> <li>Litres are used to measure larger quantities of liquids, such as petrol, paint and large buckets.</li> </ul> 

## Measuring equipment: tools to measure volume

Volume is measured with multiple pieces of equipment. Different workplaces will use different types of equipment depending on what they are measuring.

At Murray's General Store, you use a jug and measuring spoons when you are preparing food to be cooked.

Here are some examples of the different types of equipment that can be used to measure volume.

	<p><b>Jug</b></p> <p>The jug in this image will hold a volume of up to 500 mL. It would normally be used to measure the volume of liquids used in a kitchen, such as the amount of water or stock required for a recipe.</p>
	<p><b>Spoons</b></p> <p>Measuring spoons like this are used in both home and commercial kitchens. The largest one is a tablespoon; it holds a volume of 20 mL. The smallest one is a 1/4 teaspoon; it holds a volume of 1.25 mL. A teaspoon holds a volume of 5 mL.</p>
	<p><b>Cup</b></p> <p>This cup holds a volume of 250 mL. A cup would be used to measure the volume of ingredients required for a recipe, such as flour, water or oil.</p>



### Measuring cylinders

These come in different sizes and hold different volumes.

They are used in science laboratories, but they can also be used in other work contexts, such as measuring precise amounts of liquid fertiliser or weed killer.

## Temperature

Temperature is the measurement of how hot or cold something is. Temperature is measured in degrees. In Australia, temperature is measured in degrees Celsius ( $^{\circ}\text{C}$ ). For example,  $23^{\circ}\text{C}$ .

We often put the C after the degree symbol ( $^{\circ}$ ) to show we are measuring the temperature in the Celsius temperature scale. In some other parts of the world, such as North America, temperatures are measured using the Fahrenheit scale of temperature. If we talk about a temperature in Fahrenheit, we write  $^{\circ}\text{F}$  instead.

The following list contains some useful information regarding common temperature points:

- 0 °C is freezing temperature of water
- 20 °C is a pleasant temperature for working in an office.
- 37 °C is the normal body temperature of a person (it can vary a little bit).
- 100 °C is the temperature water boils at.
- 180 °C is the temperature muffins are cooked at in the oven (at fan-force).
- 700–1,200 °C is the temperature of lava from a volcano.
- –50 °C is the approximate temperature that large, commercial planes fly in.
- In Australia, the coldest temperature ever recorded was –23.0°C at Charlotte Pass in New South Wales in 1994.
- The coldest temperature ever recorded on earth was –89.2 °C in Antarctica in 1983.



## Measuring equipment: tools to measure temperature

Thermometers are used to measure temperature. Common thermometers have small tubes that contain a bulb of liquid (often mercury) at the bottom. The hotter the temperature, the higher the liquid rises up the tube. Thermometers typically have markings along the side of the glass tube that display the temperature.

Other thermometers are digital. Different workplaces will use different types of thermometers depending on their needs.

At Murray's General Store, you use thermometers to determine if the food in the food warmer is hot enough to serve. You also check to see if the food in the cool room and freezer is stored at a safe temperature.

Here are some examples of thermometers used to measure temperature.



### Cooking thermometer

These are used to measure the temperature of food that is being cooked. These days, it would be more common to use a digital thermometer for this.



### Probe thermometer

These are used to check the temperature of food that has already been cooked. These are used in shops, cafes and restaurants where food needs to be kept at a certain temperature to ensure it is safe for human consumption.

**Bulb thermometer**

These can be used to measure the air temperature.

**Digital thermometer**

There are many different sorts of digital thermometers. The one in this picture is used to read a person's temperature. Before digital thermometers, you would have had to put a bulb thermometer in your mouth to record your temperature.

**Infrared laser thermometer**

These are typically used in kitchens. You point the thermometer at an object and it records the temperature. They are often used to measure the temperature of food, engine parts and electrical connections.

## Time

Time is how long something takes to do. It is commonly measured in seconds, minutes and hours. Seconds are the shortest unit, followed by minutes and then hours. Time can also be measured in days, weeks and years, but the following explanation focuses on seconds, minutes and hours.

When you indicate the time, you often will specify that it is morning or afternoon by stating 'am' if the time is in the morning before noon and 'pm' if the time is in the afternoon or evening after noon.

For example, if you want to schedule something at half-past-ten in the morning, you would write '10.30am'. If you want to schedule something at half-past-ten at night, you would write '10.30pm'.

### **am and pm**

Time between midnight (12 o'clock at night) and before midday (12 o'clock in the middle of the day) is referred to as 'am.' Time after midday and before midnight is referred to as 'pm'.

#### **Here are some examples:**

- 10.00am means 10 o'clock before midday (or in the morning).
- 10.00pm means 10 o'clock after midday (or at night).
- 8.00am means 8 o'clock in the morning.
- 8.00pm means 8 o'clock at night.

## Units for measuring time

The table below provides more information about the different units used to measure time.

Unit	Abbreviation	Description
second	s or sec	<ul style="list-style-type: none"> <li>Seconds are used to measure things that take less than a minute, such as how long it takes someone to run 100 metres.</li> <li>There are 60 seconds in a minute.</li> </ul>
minute	min	<ul style="list-style-type: none"> <li>Minutes are used to measure things that take longer than 60 seconds, such as how long you should boil an egg for.</li> <li>Sometimes time is expressed in minutes and seconds. For example, 1 minute and 20 seconds. When the seconds equate one quarter or one half of a minute, you often say one-and-a-quarter minutes or one-and-a-half-minutes.</li> <li>There are 60 minutes in an hour.</li> </ul>
hour	hr	<ul style="list-style-type: none"> <li>Hours are used to measure things that take longer than 60 minutes, such as how long a movie runs for.</li> <li>Sometimes, time is expressed in hours and minutes or hours, minutes and seconds. For example, 2 hours and 20 minutes. When the minutes are a quarter (15) or half (30) of an hour, you often say one-and-a-quarter-hours or one-and-a-half-hours.</li> <li>There are 24 hours in a day.</li> </ul>

Unit	Abbreviation	Description
day	No official abbreviation, but sometimes 'd' is used	<ul style="list-style-type: none"> <li>• There are 7 days in a week.</li> <li>• There are between 28 and 31 days in a month, depending on which month it is.</li> <li>• The following list indicates the days of the week and their abbreviations:               <ul style="list-style-type: none"> <li>– Monday      Mon</li> <li>– Tuesday     Tues (or Tue)</li> <li>– Wednesday   Wed</li> <li>– Thursday    Thurs (or Thur)</li> <li>– Friday        Fri</li> <li>– Saturday     Sat</li> <li>– Sunday       Sun</li> </ul> </li> </ul>
week	wk	<ul style="list-style-type: none"> <li>• There are approximately 4 weeks in a month and 52 weeks in a year.</li> <li>• Weeks can be useful to measure events that take place for a period longer than 7 days. For example, the Summer Olympics take place over 14 days, which can also be expressed as two weeks.</li> <li>• A full week is 7 days, however, sometimes people will refer to a work week, which is five days. This is because people usually work 5 days a week: Monday through to Friday.</li> </ul>

Unit	Abbreviation	Description
month	No official abbreviation, but sometimes 'mth' is used	<ul style="list-style-type: none"> <li>• There are 12 months in a year.</li> <li>• The following list indicates the months of the year and their abbreviations:               <ul style="list-style-type: none"> <li>– January            Jan</li> <li>– February        Feb</li> <li>– March            Mar</li> <li>– April            Apr</li> <li>– May            May</li> <li>– June            Jun</li> <li>– July            Jul</li> <li>– August        Aug</li> <li>– September    Sept</li> <li>– October        Oct</li> <li>– November    Nov</li> <li>– December    Dec</li> </ul> </li> </ul>
year	yr	<ul style="list-style-type: none"> <li>• In Australia, dates are written in the following order: day, month, year. There are many ways to express this, and the following list contains some more common examples:               <ul style="list-style-type: none"> <li>– 12 September 2021</li> <li>– Twelfth (or 12th) of September 2021</li> <li>– 12/09/2021</li> </ul> </li> <li>• The numerical dates can also be shortened accordingly:               <ul style="list-style-type: none"> <li>– 12/9/2021</li> <li>– 12/9/21</li> </ul> </li> </ul>

## Measuring equipment: tools to measure time

Common instruments used to measure time include clocks and watches. For highly accurate measurements of time, an atomic clock is used. Stopwatches can also be used to measure how much time has elapsed; this is common in competitive sports. Different workplaces will use different types of clocks depending on what needs to be measured.

At Murray's General Store, you use a digital clock to make sure food is cooked for the right amount of time. You also refer to a clock so you know when to open and close the store.

Here are examples of equipment that can be used to display time.



### Digital clock

Digital time is displayed using the digits from 0 to 9.

04 is the hours.

29 is the minutes.

53 is the seconds.

Therefore, the time is 29 minutes and 53 seconds past 4. This can also be expressed numerically as 04:29:53.



### Analogue clock

On an analogue clock, time is displayed using hands.

The small hand shows the hours.

The large hand shows the minutes.

The thin, red hand shows the seconds.

Therefore, the time is 55 minutes and 5 seconds past 11 (or 11:55:05). You could also say 4 minutes and 55 seconds to 1, but you would usually round it up to the nearest minute and say 5 to 12.

**Stopwatch**

A stopwatch is used to measure things that happen over a small period of time, such as a running race. Today, stopwatches are usually digital.

**Calendar**

Calendars are used to show the days, weeks and months of the year. The calendar also shows you which year it is, and some calendars include the dates for multiple years and even decades.

---

## Choosing measuring equipment

You need to make sure the equipment you are using to measure something is the right one for the job. The equipment used for measuring length is different from the equipment used to measure weight. Furthermore, the equipment used for measuring large quantities of something is different from equipment used to measure small amounts of something.

For example, if you need to measure the length of something quite long, like the width of a room, you would use a tape measure rather than a ruler. If you needed to weigh an orange, you would use small digital scales instead of a weighbridge.

To choose the best equipment for the task, do the following: think about the task, think about what you need to measure and then determine the best tool for the task. It is also important to consider safety precautions, such as whether one piece of equipment would be safer than another.

Here are two examples about choosing the right measuring equipment.

### **Example 1**

The length of one table is approximately 6 metres. To record an exact measurement, a tape measure would determine a more accurate reading than a ruler. This is because a tape measure can reach from one end of the table to the other without having to be moved once it is in place. If you use a 30 cm ruler, you will need to move the ruler across the table multiple times in order to measure the table. This will make it more likely for errors to appear in your measurement.

**The right equipment to use in this case is a tape measure.**

**Example 2**

To make mashed potatoes, 500 ml of milk needs to be mixed into the potatoes. To measure 500 ml, a 1-litre jug would be more appropriate than a tablespoon, which holds 20 mL.

If you used a 1-litre jug, you would fill the jug halfway (500 mL) according to the indicators on the side.

If you used a 20 mL tablespoon, you would need to measure 25 tablespoons of milk.

**The right equipment to use in this case is the jug.**

Using the right piece of equipment ensures you work more efficiently.

## What has happened on Day 1

On your first day of work at Murray's General Store, you have learned about:

- measuring length, weight, volume, temperature and time
- units of measurements
- measuring equipment
- choosing the right equipment.

## Learning checkpoint: Day 1

1. Which units of measurement are used to measure length?

Tick the correct answer.

- Litres and millilitres
- Kilograms and grams
- Metres and centimetres
- Minutes and seconds

2. What is the abbreviation for metre? Tick the correct answer.

- m
- mL
- mm
- min

3. What is the abbreviation for kilogram?

Tick the correct answer.

- kg
- cm
- g
- mL

4. You require 500 g of cabbage to make coleslaw. What piece of equipment would you use to measure the weight of the cabbage? Tick the correct answer.

- jug
- thermometer
- kitchen scales
- tape measure

5. The following numbers are displayed on a set of digital kitchen scales: 1.54. Which units are these digital kitchen scales showing? There are **two (2)** correct answers. Tick all the correct answers.
- degrees
  - grams
  - kilograms
  - metres
6. What is the abbreviation for millilitre?  
Tick the correct answer.
- mm
  - L
  - mL
  - kg
7. Which units of measurement are used to measure volume?  
Tick the correct answer.
- Litres and millilitres
  - Kilograms and grams
  - Metres and centimetres
  - Minutes and seconds
8. If the time is 9.00 am, how else may you express this?  
Tick the correct answer.
- 9 o'clock in the morning
  - 9 o'clock in the evening.
  - 9 hours past midday
  - 9 hours before midnight

9. Which metric unit would you use to measure the distance between Melbourne and Sydney? Tick the correct answer.
- kilograms
  - kilometres
  - metres
  - millimetres
10. Which metric unit would you use to measure the volume of a watering can? Tick the correct answer.
- grams
  - litres
  - metres
  - millimetres
11. You need to measure 10 ml. What piece of equipment would you use? Tick the correct answer.
- jug
  - tape measure
  - spoon
  - clock
12. What equipment would you use to measure temperature? Tick the correct answer.
- ruler
  - thermometer
  - clock
  - measuring cup

13. What does the symbol '°' stand for?

Tick the correct answer.

- degrees
- hours
- minutes
- seconds

14. A recipe instructs you to cook 500 grams of rice for 12 min.

What does 'min' stand for? Tick the correct answer.

- metres
- millilitres
- millimetres
- minutes





## Day 2

On your second day working at Murray's General Store, your supervisor, Molly, gives you the recipe for coleslaw and shows you how to make it for customers to buy. To make coleslaw, you need to use the right measuring equipment. Molly shows you where the equipment is and tells you how much coleslaw you need to make.

## Example: Calculating at work

An ingredients list describes what items (ingredients) are needed to make something.

A list of ingredients outlines the foods and quantities that are needed in a recipe. A recipe is a set of instructions that detail how you cook or prepare a meal.

At Murray's General Store, your task is to make coleslaw salad for customers to buy. To make coleslaw, you need to read the recipe.

Here is the list of ingredients required for the coleslaw recipe.



### **Coleslaw**

Ingredients:

- 500 g cabbage
- 250 g carrot
- 100 g onion
- 250 mL mayonnaise

Sometimes, you may need to make a larger quantity of coleslaw. To make a larger quantity, you will need to alter recipe and make simple calculations to work out the new quantity of ingredients you need.

You will need to know how to make these calculations so the larger quantity of coleslaw tastes the same as the usual recipe.

# Calculations

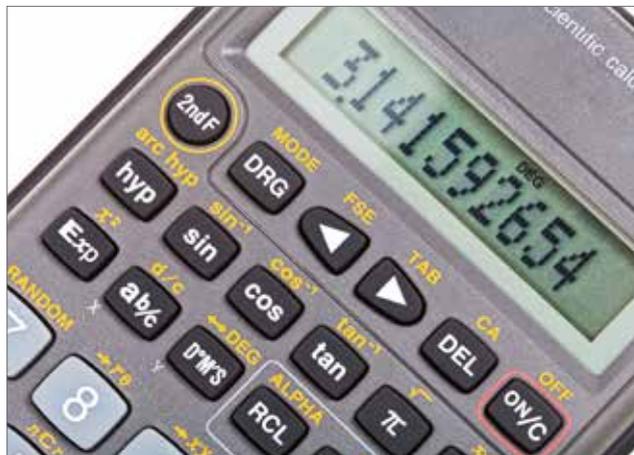
To solve a numerical problem, you will need to decide what type of calculation to do.

Calculations are tasks you do in order to solve a mathematical problem. When you are doing calculations involving numbers, you might have to:

- add (+)
- subtract (-)
- multiply (x)
- divide ( $\div$ ).

These are called mathematical or arithmetical operations.

To solve problems using numbers, you need to select the right operation and make sure you understand how to do it correctly.



## Using mathematical language

Molly explains that it is important to read and understand the measurements. You may also need to write down the words and symbols used to calculate the different measurements and explain each one.



## Mathematical words and symbols

To do calculations and solve mathematical problems, you need to understand mathematical language – both the words and symbols. Symbols are often used instead of words in maths.

When you do calculations, different words that have the same meaning may be used. For example, you may be asked to ‘subtract’ or ‘minus’ a number – whichever expression is used, this means you need to ‘take away’ a number in order to complete a calculation.

Listed in the table below are the symbols used for different types of calculations. The table also includes examples of different words with similar meanings that are often used when describing calculations.

Calculation	Symbol	Words	Example
add	+	plus add and sum total	5 plus 3 5 add 3 5 and 3 sum of 5 and 3 total of 5 and 3
subtract	-	take away minus subtract from difference less less than	5 minus 3 5 take away 3 subtract 3 from 5 3 from 5 difference between 5 and 3 5 less 3 3 less than 5
multiply	x	multiply times by lots of	5 multiplied by 3 5 times 3 5 by 3 5 lots of 3
divide	÷	divide into how many ___ in ?	8 divided by 4 4 into 8 how many 4s in 8?

## Addition

Addition involves putting two or more numbers (or quantities) together to make a larger number. Depending on where you work, you may need to add multiple lengths together.

Here is an example of addition:

**FSKNUM009**Use familiar and simple metric measurements for work

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<b>9</b>	<b>+</b>	<b>30</b>	<b>= 39</b>
			

$$9 + 30 = 39$$

Adding 9 and 30 together makes 39.

You can also say, 'the sum of 9 and 30 is 39'.

At Murray's General Store, three shelves in the storeroom need to be covered with brown pieces of paper. The following list includes a breakdown of information to help you work out how many pieces of paper are needed to cover all three shelves:

- Each shelf is 4 metres long.
- A sheet of brown paper is 1 metre long.
- To cover one shelf, you need 4 sheets of brown paper.

In order to work out how many pieces of brown paper you need, you need to add 4 sheets of brown paper to each shelf and work out the total.

For example:

$$\text{Shelf 1} + \text{Shelf 2} + \text{Shelf 3} = 12$$

or

$$4 + 4 + 4 = 12$$

Therefore, you need 12 sheets of brown paper to cover the 3 shelves.

<b>Shelf 1</b>				
<b>Shelf 2</b>				
<b>Shelf 3</b>				

You may also need to use addition when you do calculations that measure weight, volume, time and temperature.

## How to write an addition sum

When you write out an addition sum, it's important to set it out correctly in order to make an accurate calculation.

For example, if you add 1.135 metres and 4.990 metres, you might set the addition sum out like this:

$$\begin{array}{r} 1.135 \\ + 4.990 \\ \hline 6.125 \end{array}$$

Remember to line up  
the decimal points

## Subtraction

Subtraction is when you take one number away from another number or quantity. It can also be used to calculate the difference between two numbers or quantities.

For example, at Murray's General Store, there are 15 bottles of milk on the shelf. A customer buys 4 bottles. Because there are 4 less bottles, this means there are now 11 bottles of milk left.

Here is an example of subtraction:

$$15 - 4 = 11$$

Subtraction takes the smaller number away from the larger number.

**15 litres of milk – 4 litres of milk = 11 litres of milk**

<b>15</b>	<b>–</b>	<b>4</b>	<b>=</b>	<b>11</b>
				

A calculation involving subtraction could also be phrased as ‘What is the difference between 15 and 11.’ Here is an example of how to write this calculation out:

$$**15 - 11 = 4**$$

You may need to use subtraction when you do calculations involving weight, length, volume, time and temperature.

## How to write a subtraction sum

When you write out a subtraction sum, it is important to set it out correctly in order to make an accurate calculation.

For example, if you want to find the difference between 7.84 metres and 5.65 metres, you might set the subtraction sum out like this:

$$\begin{array}{r} 7.84 \\ - 5.65 \\ \hline 2.19 \end{array}$$

Remember to line up the decimal points

## Multiplication

Multiplication is just a quick way of adding the same number of something multiple times. For example, if you have 3 groups of juice bottles and each group has 6 bottles each, instead of adding them all together, you could multiply each set of 6 bottles by the 3 groups in order to calculate the total number of juice bottles.

For example:

$$6 + 6 + 6 = 18$$

or

$$3 \text{ lots of } 6 = 18$$

or

$$3 \times 6 = 18$$

<b>3</b>	<b>×</b>	<b>6</b>	<b>=</b>	<b>18</b>		
<b>OR</b>						
<b>6</b>	<b>+</b>	<b>6</b>	<b>+</b>	<b>6</b>	<b>=</b>	<b>18</b>
						

You may need to use multiplication when you do calculations involving weight, length, volume, time and temperature.

## How to write a multiplication sum

When you write a multiplication sum, it's important to set it out correctly in order to make an accurate calculation.

For example, if you want to find the total weight of 8 lots of 17 kg, you might set the multiplication sum out like this:

$$\begin{array}{r} 8 \\ \times 17 \\ \hline 136 \end{array}$$

## Division

Division involves splitting or sharing an amount of something into an equal number of parts.

For example, if you have 18 bottles of juice and want to share them equally between 3 customers, you need to work out how many bottles each customer will get. This means you divide the 18 bottles by 3 lots (or groups). You can express this calculation like this: 18, 3 or  $18/3 = 6$

The full calculation can be written out as follows:

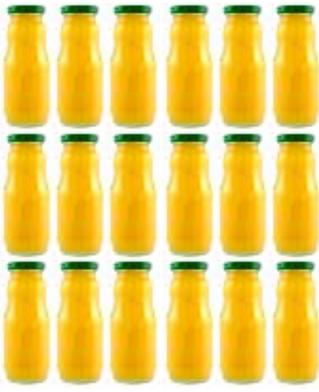
$$18 \div 6 = 3$$

or

$$18/3 = 6$$

Therefore, each customer receives 6 bottles of juice.

Here is what 18 divided into 3 equal lots looks like.

<b>18</b>	÷	<b>3</b>			=	<b>6</b>
						

You may need to use division when you do calculations with weight, length, volume, time and temperature.

### How to write a division sum

When you write a division sum, it's important to set it out correctly in order to make an accurate calculation.

For example, if you want to divide 12.55 metres into 5 equal parts, you might set the division sum out like this:

$$\begin{array}{r}
 12.55 \\
 \div \quad 5 \\
 \hline
 2.51 \\
 \hline
 \end{array}$$

**Put in the decimal point  
when you get to it.**

## Solving a numerical problem

Depending where you work, and what your tasks are, you may need to work out how to solve a problem using numbers. Some problems that need to be solved using numbers will include measuring.

Here are some examples.

Problem	Solution
<ul style="list-style-type: none"> <li>How much coleslaw has Murray's General Store sold in the last week?</li> </ul>	<ul style="list-style-type: none"> <li>Add the number of coleslaw sales from each of the last 7 days together.</li> </ul>
<ul style="list-style-type: none"> <li>A customer places a large order and gets a 10% discount on the total price.</li> <li>How much should the customer pay Murray's General Store?</li> </ul>	<ul style="list-style-type: none"> <li>Add the sum of each item together.</li> <li>Calculate 10% of the total to work out the customer's discount.</li> <li>Subtract the customer's discount to calculate what the customer should pay.</li> </ul>
<ul style="list-style-type: none"> <li>Some days, Murray's General Store only sells a small quantity of coleslaw, but on the weekend the store sells a much greater amount.</li> <li>How much of each ingredient do you need to buy for a week?</li> </ul>	<ul style="list-style-type: none"> <li>Find out how much coleslaw is sold each day.</li> <li>Work out the quantity of each ingredient that is required for the recipe each day.</li> <li>Add the amount of ingredients required for each day together to calculate the weekly total.</li> </ul>

When you solve a numerical problem like the ones listed above, you must be able to:

- understand the problem and decide what mathematical calculations best fit each task. This may include reading numbers, maths symbols, words and measurements. If you need to measure something, you will have to choose the best equipment for the task
- estimate the answer
- measure something and do mathematical calculations. In each of the examples above, you need to do a numerical calculation
- check your answer
- write and discuss the answer – you may also need to talk about how you did each measurement or calculation.



## Estimating before a calculation

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

An estimation is an approximate or educated guess. An educated guess is a reasoned guess based on knowledge and experience rather than just a random number you think might be right without justification.

You do this by doing a quick measurement, estimate or calculation to get a rough idea of what the answer could be. It is **not** an accurate or precise answer – just an estimate.

Usually you round off the numbers or measurements into easier, simpler numbers. This helps you to add, subtract, multiply or divide the numbers quickly in your head (or with a pen and paper).

### You may use estimations to measure:

- length
- weight
- capacity
- temperature
- time.

When you are estimating length, it's helpful to use your body.

Unit of measurement	Body part references
1 metre	<ul style="list-style-type: none"> <li>• A big pace</li> <li>• Waist height from the ground (for an adult)</li> </ul>
1 cm	<ul style="list-style-type: none"> <li>• The width of 1 fingernail</li> </ul>
20 cm	<ul style="list-style-type: none"> <li>• Your handspan (to work out your handspan, stretch your fingers out and measure the distance from your little finger across to your thumb)</li> </ul>

## Examples of estimations

Here are some examples of things you can estimate.

### Length

I need a mat to stand on in the kitchen. There is a mat for sale that is 3 metres long. I pace out the length of the work area and it is  $2\frac{1}{2}$  paces long. One pace is just under 1 metre, so I think the mat may be too long.

### Weight

I need 2 kg of cabbage to make coleslaw. I know one large cabbage weighs about 1 kg, so I'll need about two large cabbages.

### Volume

When I made the coleslaw yesterday, I used a 1 litre jug to measure the mayonnaise and filled it halfway. Today, I am making twice as much coleslaw, so I will fill the entire jug with mayonnaise.

### Temperature

Yesterday, when I reheated some room-temperature food in the oven, it took 20 minutes for the food to heat up. Today, the same amount of food is refrigerated and colder, so I think it will take about 30 minutes for the food to heat up properly.

### Time

It took half an hour to deliver Mrs. Jung's order last week when the roads were quiet at 2.00 pm. This time, her delivery is during peak hour, and it may take about 15 minutes longer because there is more traffic on the road.

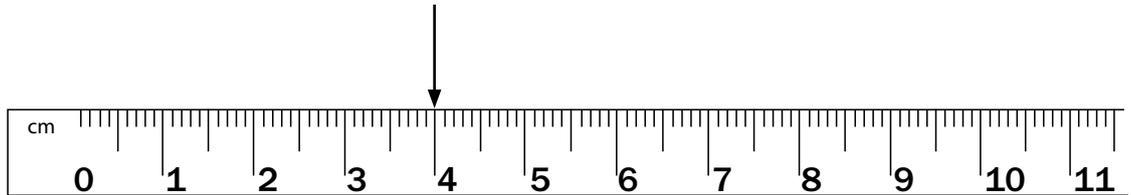
## Measuring

When you measure at work, depending on what you are measuring, you will need to practice using specific equipment in order to be accurate. You learnt about some measuring equipment on Day 1.

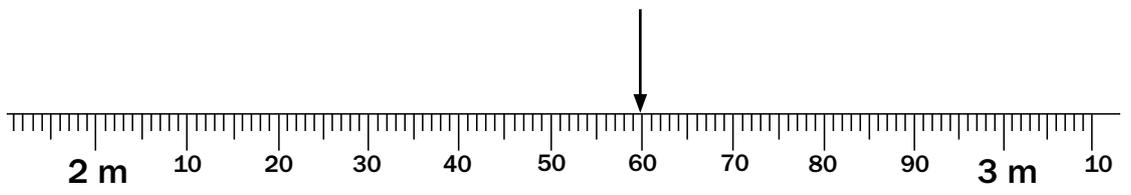


## Measuring length

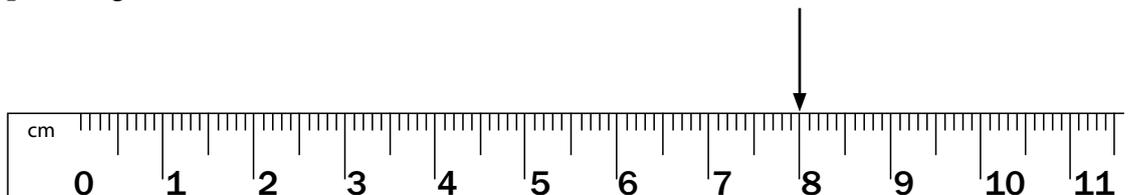
The image below is of part of a ruler. The numbers show the centimetres. The arrow is pointing to 4 centimetres.



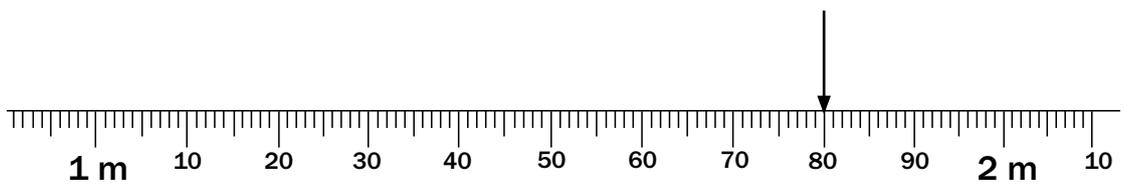
The image below is a part of a tape measure. It has been reduced in size. The part of the tape measure in the image, starts at 2 metres and goes to just over 3 metres. The small numbers show the centimetres. The arrow is pointing to 2 metres and 60 centimetres.



Look at the image of a ruler below. What length is the arrow pointing to? \_\_\_\_\_



Look at the image of a tape measure below. The image has been reduced in size. What length is the arrow pointing to?  
\_\_\_\_\_



Use a tape measure or a ruler to measure the page in this resource.

Width: \_\_\_\_\_

Height: \_\_\_\_\_

Use a tape measure to measure the size of the top of the table you are working on.

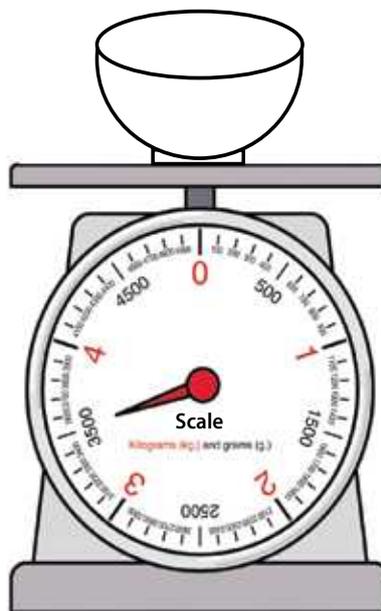
Width: \_\_\_\_\_

Length: \_\_\_\_\_

## Measuring weight

At Murray's General Store, you need to measure weight when you prepare food to be sold; you also must weigh parcels that customers want posted. It is important to be accurate when weighing these items to ensure customers are happy with your service.

The image below shows an analogue scale – it uses a hand to indicate weight instead of a digital numerical display. The scales indicate that the bowl weighs 3 kilograms and 500 grams (or 3,500 grams).



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Use familiar and simple metric measurements for work

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The following image shows a digital scale weighing a bowl filled with lemons. These scales indicate that the bowl filled with lemons weighs 769 grams.



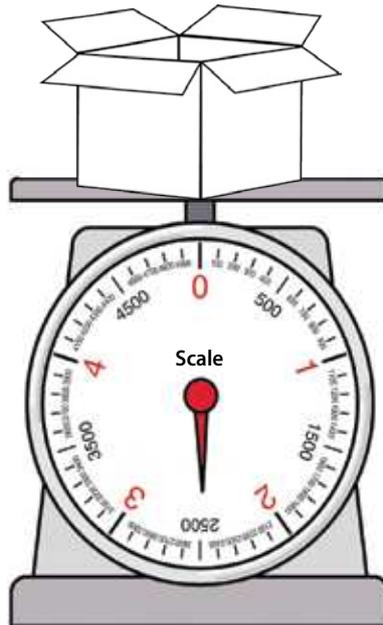
Look at the following picture.

How much do the mangoes weigh? \_\_\_\_\_



The digital scale you usually use to weigh parcels has broken, and you need to use the analogue scales instead.

How much does the parcel below weigh? \_\_\_\_\_



Now use a set of scales to measure an object of your choice. Make sure you weigh it accurately.

What did you weigh? \_\_\_\_\_

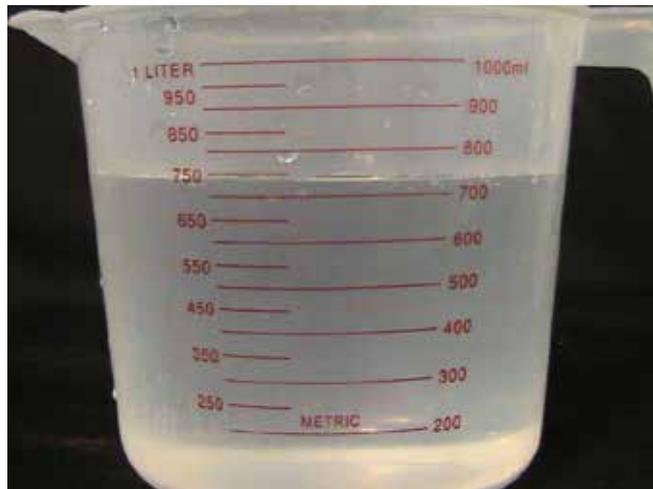
What type of scales did you use? \_\_\_\_\_

How much did it weigh? \_\_\_\_\_

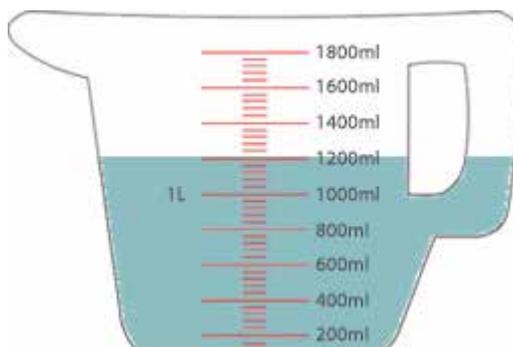
## Measuring volume

When you prepare food to be sold at Murray's General Store, you sometimes have to measure the volume of a liquid required.

This image of a jug lists its volume in millilitres. The jug's total volume is 1000 mL (1 Litre). The following jug contains almost 750 mL of water.



Look at the image below of a jug. How much liquid is in the jug?



Look at the jug below. You want to measure 300 mL of milk.  
Draw a line on the jug below showing where you would fill it up to.



Use one of the measuring tools you learnt about in Day 1 to measure a quantity of liquid. Make sure to measure it accurately.

What did you use to measure the liquid? \_\_\_\_\_

What did you measure? \_\_\_\_\_

How much did you measure? \_\_\_\_\_

## Measuring temperature

At Murray's General Store, you need to make sure the temperature in the cool room is cold enough, and the hot food on display is hot enough, so that bacteria don't grow on the food and make people sick.

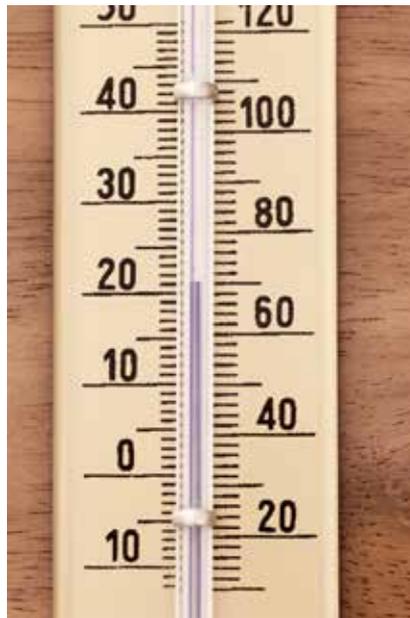
This is the probe thermometer you use to tell if the food in the display, such as pies and sausage rolls, is cold enough. The food has to be under 5°C. The display on the probe thermometer is showing that the pies are 12°C, so they are not cold enough to be sold.



A bulb thermometer in the store displays the room temperature. All the customers are complaining about how hot it is inside the store, so you look at the thermometer and see that it is 32°C, which is too hot, so you turn the air conditioner on.

Look at the bulb thermometer below.

What temperature is it showing? \_\_\_\_\_



Below is a different sort of probe thermometer.

What temperature is it showing? \_\_\_\_\_



Do you need to measure temperature at work? \_\_\_\_\_

If yes, measure the temperature using whatever device is available, and fill in the box below.

What did you read the temperature of? _____ _____
What was the temperature? _____ _____
What device did you use to read the temperature? _____ _____
Why do you need to record the temperature? _____ _____

If you don't need to measure temperature at work, use a thermometer to measure the temperature of something at home. This might be your temperature, the air temperature or the temperature of food. Fill in the box below.

What did you read the temperature of? _____ _____
What was the temperature? _____ _____
What device did you use to read the temperature? _____ _____

## Measuring time

At Murray's General Store, you need to measure time in order to know how long to cook something for, how long you have worked and how long you can park in a parking spot for when you make deliveries.

Murray's General Store makes the sausage rolls they sell in store, and they need to be cooked for 25 to 30 minutes. If you place them in the oven at 9.30 am, you will need to take them out of the oven between 9.55 am and 10.00 am to ensure they are properly cooked.

It's Friday, and while you are delivering orders to customers, Molly rings you and asks you to pick up some sausage meat from the butcher. The main street, where the butcher's shop is located, is busy this afternoon – and the only park you can find obeys the following parking signs:



You check the time and it's 3.30 pm, so you know you can only park there for 1 hour, which means you need to move the van by 4.30 pm. You decide to park there and hope the butcher's shop isn't busy to ensure you return to your van in less than 1 hour.

Molly says to check the use-by dates on the bottles of mayonnaise. The unopened bottles are kept out the back in the coolroom. She doesn't want to use any that are out of date. In the storeroom you find the bottles have stamped on them:

**Use by**

**23/12/19**

Molly explains how to read the information. Each set of numbers is separated by a slash symbol '/'. The first set of numbers refers to the day, the middle set of numbers refers to the month and the last set of numbers refers to the year. Therefore, the mayonnaise should have been used by the 23rd of December 2019, which means it is now out of date and must be discarded.

Molly says the sausage rolls need to be cooked by 9.30 am, as some customers like to eat a sausage roll for their morning tea. It takes 20 minutes to prepare the sausage rolls and 30 minutes to cook them.

How long does it take to prepare and cook the sausage rolls?

\_\_\_\_\_

What time should you start to prepare the sausage rolls?

\_\_\_\_\_

What time should you put the sausage rolls in the oven?

\_\_\_\_\_

It's Monday morning and you have just parked your car. Your watch displays the following time: 1:24pm.

You are parked in an area with the following sign:



According to both your watch and the sign, what time will you need to move your car? \_\_\_\_\_

The use-by date on a can of tomatoes is 12/08/21. Look at today's date. Is it safe to use the can of tomatoes? Tick the correct box.

Yes

No

## Calculating your answers

Sometimes you will need to make calculations based on the information you have, such as the instructions in a recipe or by applying the measurements you have made to a new task.

People do calculations in different ways. Some methods include:

- using a pen and paper
- doing them in your head
- using a calculator.

Depending on how complicated the calculation is, you may choose whichever method you think works best.



## Work out a sum in your head

Some calculations can be done by thinking them through in your head. This means you can do the calculation without writing it down and instead use mental calculations silently.

Some people can do calculations quickly and easily in their heads, and they use lots of different methods to do this accurately, depending how good they are at maths. It's more common to add and subtract small sums in your head, as multiplication and division is often more complicated, multiplying and dividing. However, it all depends on your individual ability as well as the size of the numbers you are working with .

For example, if 5 bags of oranges costs \$15, you can work out that 10 bags of oranges will cost \$30. This is because you know that 10 bags are 2 times as much as 5 bags.

Using this information, you can then work out the cost of 10 bags in your head, because you know that 2 times 15 is 30. Therefore, 10 bags of oranges will cost \$30.



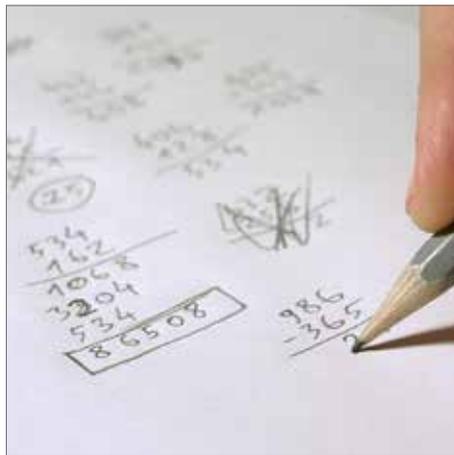
## Use a pen and paper

For some calculations, you may need to use a pen and paper depending on how difficult they are. For example, a customer may order 10 bags of groceries and want them delivered. This means you need to calculate the cost of the groceries and then add the delivery fee on top of this to determine the total cost.

There are lots of different ways to calculate using a pen and paper, and you can use whatever method works best for you. Talk to your trainer or supervisor if you don't know how to do calculations. They may be able to help you.

In the previous sections, there were some examples of calculating using a pen and paper. These are listed again below:

$$\begin{array}{r}
 \mathbf{1.135} \\
 + \mathbf{4.990} \\
 \hline
 \mathbf{6.125}
 \end{array}
 \qquad
 \begin{array}{r}
 \mathbf{7.84} \\
 - \mathbf{5.65} \\
 \hline
 \mathbf{2.19}
 \end{array}
 \qquad
 \begin{array}{r}
 \mathbf{8} \\
 \times \mathbf{17} \\
 \hline
 \mathbf{136}
 \end{array}
 \qquad
 \begin{array}{r}
 \mathbf{5} \\
 \div \mathbf{12.55} \\
 \hline
 \mathbf{2.51}
 \end{array}$$

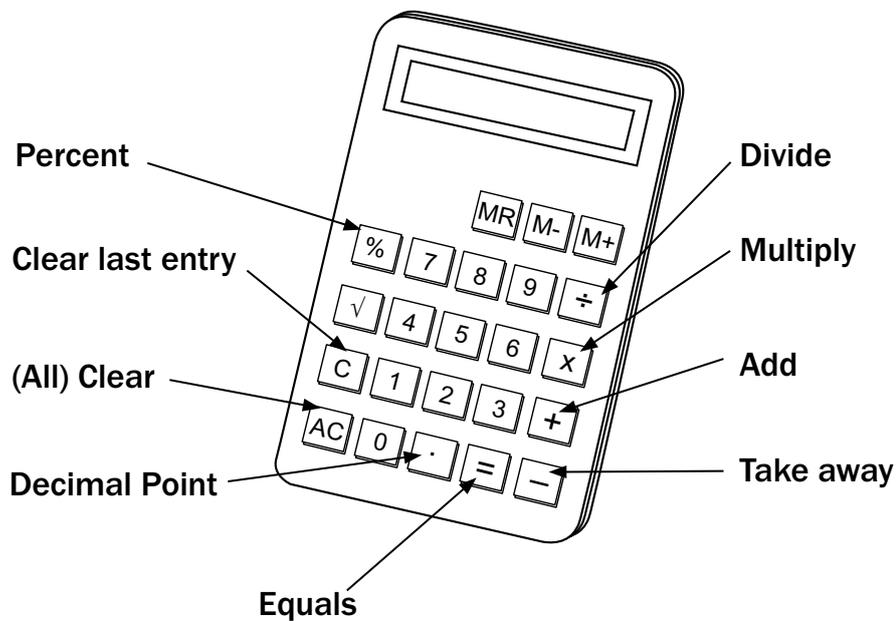


## Use a calculator

You can also use a calculator to work out, or calculate, your answers.

A calculator is a great tool to use. When used correctly, it completes calculations quickly and accurately. However, if you don't know how to use a calculator properly, it can be difficult to solve a problem.

The following picture is of a typical calculator, and each label points to the buttons you will commonly use.



The following table describes common symbols used on a calculator.

Operation	Button	Meaning
Add	<b>+</b>	Adds the next number to what you have already entered into the calculator.
Divide	<b>÷</b> or <b>/</b>	Divides the next number into what you have already entered into the calculator.
Multiply	<b>X</b> or <b>*</b>	Multiplies the next number to what you have already entered into the calculator.
Take away	<b>–</b>	Takes away or subtracts the next number from what you have already entered into the calculator.
Percent	<b>%</b> or <b>%±</b>	Works out a percentage for you.
Clear last entry	<b>C</b> or <b>CE</b>	Clears from the screen just the last number you entered. This means that if you make a mistake when you enter a number, you can change it without deleting any previous numbers and operations.
(All) Clear	<b>C</b> or <b>AC</b>	Clears everything from the calculator.
Decimal point	<b>•</b>	The point that separates the whole number part of a number from the fraction part.
Equals	<b>=</b>	Pressing the = (equals) button gives you the answer to the calculation.

Unfortunately, often due to human error, calculators can be wrong sometimes, so don't trust them completely. You should always check your answers with whatever method you are most confident using.

## Adding, subtracting, multiplying and dividing using a calculator

Previously, you learned how to calculate sums using a pen and paper. When you use a calculator, you need to press the buttons in the correct order to get the right answer.

Some examples are listed below.

### Adding

If you want to use a calculator to add 1.135 metres and 4.990, you would press the buttons in the following order:

1	.	1	3	5	+	4	.	9	9	0	=
---	---	---	---	---	---	---	---	---	---	---	---

If you have done this correctly, the following answer will appear on the screen:

<b>6.125</b>
--------------

Therefore, the sum of 1.135 metres and 4.990 metres is 6.125 metres.

**Subtracting**

If you want to use a calculator to determine the difference between 7.84 metres and 5.65 metres, you would press the buttons in the following order:

7	.	8	4	-	5	.	6	5	=
---	---	---	---	---	---	---	---	---	---

If you have done this correctly, the following answer will appear on the screen:

2.19
------

Therefore, the difference between 7.84 metres and 5.65 metres is 2.19 metres.

**Multiplying**

If you want use a calculator to find the total weight of 8 lots of 17 kg, you would press the buttons in the following order:

8	x	1	7	=
---	---	---	---	---

If you have done this correctly, the following answer will appear on the screen:

136
-----

Therefore, the total weight of the 8 lots of 17 kg is 136 kg.

**Dividing**

If you want to use a calculator to divide 12.55 metres into 5 equal parts , you would press the buttons in the following order:

<b>1</b>	<b>2</b>	<b>.</b>	<b>5</b>	<b>5</b>	<b>÷</b>	<b>5</b>	<b>=</b>
----------	----------	----------	----------	----------	----------	----------	----------

If you have done this correctly, the following answer will appear on the screen:

<b>2.51</b>
-------------

12.55 metres divided by 5 is 2.51 metres.

## Checking measurements and calculations

When you finish measuring or making a calculation, it is important to check that the answer is correct.

When you do your own calculations, either with a pen and paper or a calculator, there are some important things to consider. Calculators (as well as other methods) can sometimes give you the wrong answer – for example, you may have made a mistake when pressing a button on the calculator.

This is why you should always check your answers after you have worked them out. You can do two things to check.

- Check your answer against your initial estimate. It should be similar or pretty close.
- Think about whether your answer seems correct and reasonable. Use your prior knowledge and common sense to think about whether the number or measurement seems about right.

For example, at Murray's General Store, a customer wants to mail a parcel. You hold the parcel in your hands and estimate that the parcel weighs less than 1 kg. When you place the parcel on the scale to weigh it, it weighs slightly more than 1 kg. This is close to your estimate and appears correct.

Depending on the task, checking the accuracy of a measurement or calculation can be very important. For example, it's important to know how long food has been at the right temperature for in order to guarantee it is safe to eat.

## Communicate mathematical information

In a workplace, it is important to record and communicate the results of measurements and calculations clearly and correctly. You may also need to explain the process you used to determine your results. To do this, use the mathematical language that is used in your workplace.

Depending where you work, there may be specific words to communicate numerical information and results. It is a good idea to confirm this with your supervisor before commencing a task.



## Formal and informal maths language

Sometimes, you will need to understand formal maths language to read, write or discuss numbers and calculations (e.g., plus, subtract, multiply, divide). Other times, you can use informal language (e.g. total, from, lots of, into). You will also need to understand formal maths symbols (e.g. +, −, ×, ÷, %). You learnt about these earlier on Day 2. On Day 1, you also learnt about abbreviations for units of measurement like ‘g’ for grams and ‘L’ for litres.

Depending on where you work, there may be formal words related to the maths that you might need to learn and use. For example, at Murray’s General Store, you have to accurately record the temperature of the coolroom.

Formal language is usually more precise. In this example, it is needed to make sure the measurements and calculations are precise and accurate. When recording the information, you must use the correct language to ensure other workers can understand what is being communicated.

In some workplaces, informal maths language may be used to record information or talk about measurements and calculations. Informal maths language is more casual and friendly; it may also be less precise. Informal maths language is more likely to be used when you talk to someone casually about a topic that concerns numbers, measurements and calculations.



### Example: using formal and informal maths

Here are examples of informal and formal maths language.

Informal language	Formal language
The food needs to be cooked for about 30 minutes.	Ensure the food is cooked for a duration of 30 minutes.
The outside temperature went up by 10 degrees.	The outside air temperature increased by 10 degrees Celsius.
The food needs to be kept in the fridge until 7.30 in the morning to keep it cold.	Do not remove the food from the fridge until 7.30 am. This will meet food safety guidelines.
The bench was about 60 centimetres across.	The width of the bench was 60 centimetres.
You need about half-a-kilo of flour.	The recipe states 0.5 kg of flour is required.

## What has happened on Day 2

On your second work day at Murray's General Store, you have learned about:

- calculations using +, −, x and ÷.
- solving a numerical problem
- estimating
- measuring
- different ways of making calculations including using a calculator
- checking measurements
- recording results
- using formal and informal maths language to communicate about measurement.

## Learning Checkpoint: Day 2

1. A bag of icing sugar weighs 250 g. How much will two bags weigh? Tick the correct answer.
  - 250 g
  - 500 g
  - 1 kg
  - 125 g
2. You bought three lengths of timber with the following lengths: 2.4 m, 1.8 m and 3.6 m. What is the total length of all three pieces? You can use a calculator. Tick the correct answer.
  - 0.6 m
  - 4.2 m
  - 7.8 m
  - 78 m
3. What's the difference between  $2\frac{1}{2}$  metres and 1 metre? Tick the correct answer.
  - 1 metre
  - $1\frac{1}{2}$  metres
  - $2\frac{1}{2}$  metres
  - $3\frac{1}{2}$  metres
4. You are making a large quantity of coleslaw. The mayonnaise comes in a 1-litre container, and you have already used 250 mL of the mayonnaise. To work out how much mayonnaise is left, what sum would you use? Tick the correct answer.
  - add
  - subtract
  - multiply
  - divide

5. You bought 5 pieces of timber. Each piece is 2.4 metres long. What is the total length of the timber you bought?

Tick the correct answer.

- 1.2 m  
 12 m  
 24 m  
 120 m

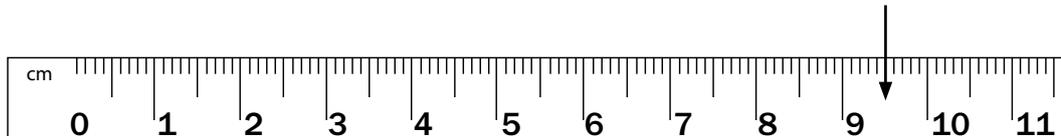
6. You have made 2 kg of coleslaw. You want to divide it into 250g containers. How many will you need?

Tick the correct answer.

- 2  
 4  
 6  
 8

7. The image below is of a section of a ruler. Each number indicates the number of centimetres along the ruler. How many centimetres is the arrow pointing to?

Tick the correct answer.



- 9 cm  
 9.5 cm  
 10 cm  
 8.5 cm

8. How much liquid does this jug measure?  
Tick the correct answer.



- 500 millilitres  
 500 milligrams  
 500 litres  
 0.5 millilitres
9. In order to be safe for human consumption, food has to be reheated to 75°C. Does the thermometer below indicate if the food is hot enough to eat? Tick the correct answer.



- Yes  
 No

10. You are making muffins to sell in the store. You read the recipe and notice that muffins take 20 minutes to cook. If you put them in the oven at 8.00 am, what time will they be ready to take out of the oven? Tick the correct answer.
- 8.00 pm
  - 8.20am
  - 7.40 am
  - 8.20 pm
11. Today is 14 March 2021. The use-by-date on the milk is 28/2/2021. Is it safe to use the milk? Tick the correct answer.
- Yes
  - No
12. What's the first thing you should do when you have a maths problem that requires you to measure something? Tick the correct answer.
- Measure and calculate the answer
  - Estimate the measurement
  - Check your answer
  - Understand what the problem is and decide what you need to measure.
13. You need to estimate the size of a room. What would you do? Tick the correct answer.
- Guess the size using previous knowledge
  - Pace out the room
  - Measure the room carefully so you are accurate
  - Ask a friend

14. What is the purpose of using a calculator?  
Tick the correct answer.
- To estimate
  - To calculate quickly and accurately
  - To allow you to ignore how to do calculations
  - To replace your pen and paper
15. After you have measured something and completed a calculation, what should you do in order to check the answer?  
Tick the correct answer.
- Guess
  - Use prior knowledge
  - Make up a number
  - Call a friend.
16. You need to fill out the coolroom temperature in the official record book. What should you use? Tick the correct answer.
- Formal oral language
  - Formal written language
  - Informal written language
  - Informal oral language
17. A customer comes into the store and tells you the temperature outside just shot up 5 degrees. Has the customer used formal or informal maths language? Tick the correct answer.
- Formal spoken language
  - Informal spoken language
  - Formal written language.
  - Informal written language

## What you have learned

Well done. Since you started working at Murray's General Store, you have learned about:

- measuring length, weight, volume, temperature and time
- units of measurements
- measuring equipment
- choosing the right equipment
- calculations using +, -, x and ÷
- solving a numerical problem with measurement
- estimating
- measuring
- different ways of making calculations, including how to use a calculator
- checking measurements and calculations
- recording results
- using formal and informal maths language to communicate about measurement.