Learner Pack

Level 3: Application of Number

Unit 2: Measurement and Capacity

Activities M1 – M10

Activity

Code M1

Identifying Shapes

This activity links to **Award Learning Outcome 2.1**

Introduction

Basic geometric shapes can be identified in many national flags. Knowledge of these shapes is important in describing everyday items such as national flags.

What will you learn?

Learning Outcomes

You will be able to:

1. Recognise rectangles, squares, triangles and circles.
2. Recognise shapes within shapes.

Key Learning Points

1. Basic Shapes

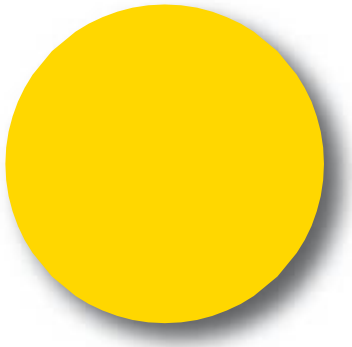
Materials you will need

- Pictures of a range of national flags
- Pencils or pens

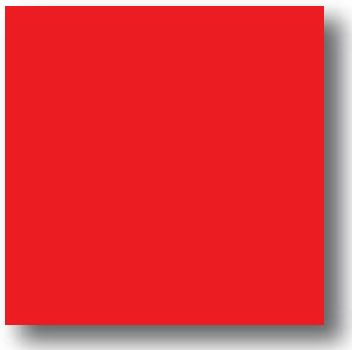
What do you need to know before you start?

1. Rectangles are four sided shapes in which sides opposite each other are equal
2. A triangle is a three sided shape.
3. Squares are four sided shapes, each side is equal in length.

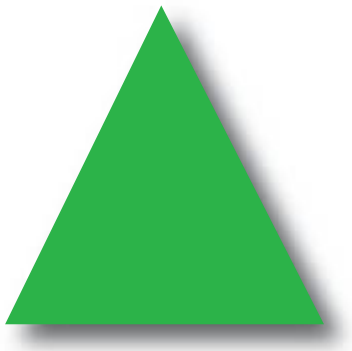
Circle



Square

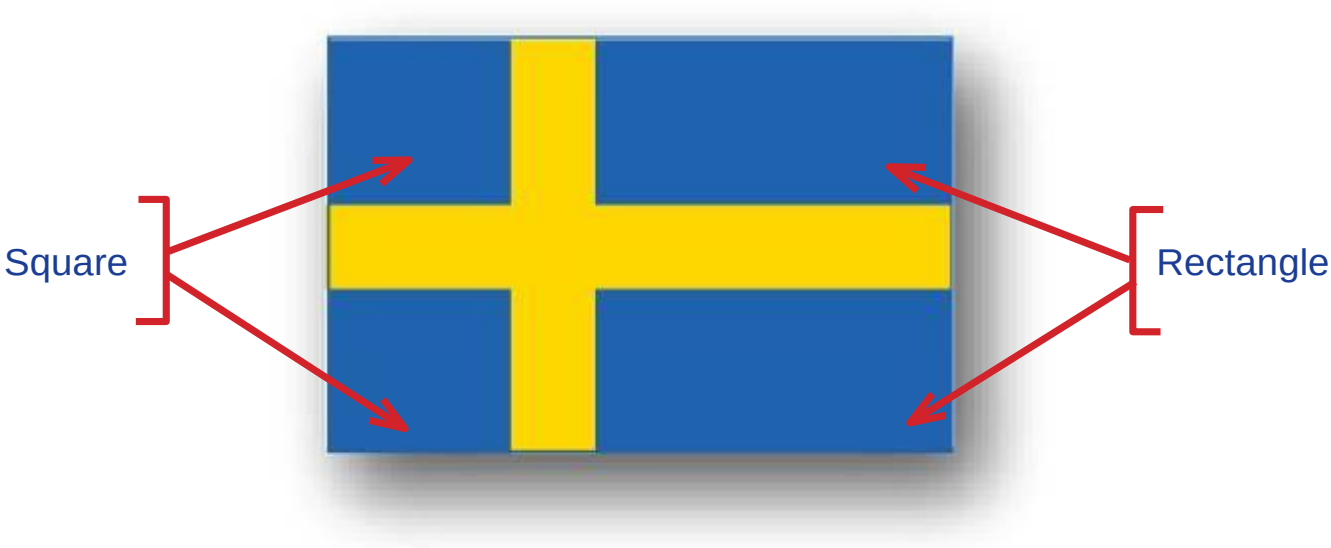


Triangle



Rectangle

e square, rectangle, circle, triangle.



Outline of Flag = Rectangle

Cross = combination of two rectangles

Task 2: Find and name the shapes

- Find the basic shapes contained in each of these flags.

Practise your skills

- Find other flags online and identify shapes in the flags.
- Practice Sheet M1 will help you develop your skills in identifying basic shapes.

Activity

Identifying Shapes (2)

Code M2

This activity links to **Award Learning Outcomes** **2.1** and **2.2.**

Introduction

You can see basic geometric shapes in the logos of products and companies. Recognising these shapes gives a greater insight into the how these logos are designed and put together.

What will you learn?

Learning Outcomes

You will be able to:

1. Recognise rectangles, squares, triangles and circles.
2. Recognise shapes within shapes

Key Learning Points

1. Basic geometric shapes

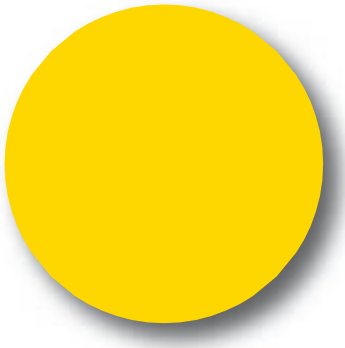
Materials you will need

- Pictures of a range of logos
- Pencils or pens

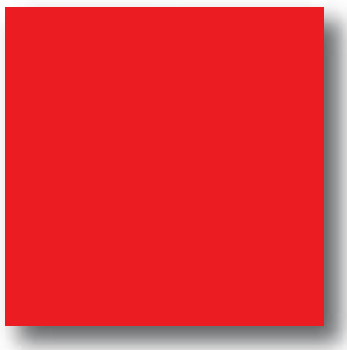
What do you need to know before you start the activity?

1. A **rectangle** four sided shapes in which the sides **opposite** each other are equal in length.
2. A **triangle** is a three sided shape.
3. A **square** is a four sided shape in which **all four sides** are equal in length.

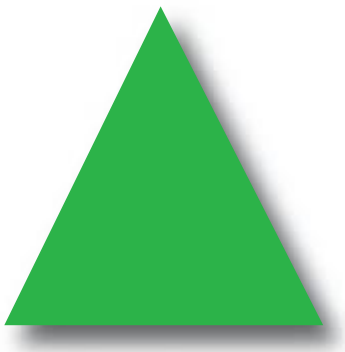
Circle



Square



Triangle



Rectangle

Task 1: Recognising shapes

Label the shapes you recognise in this logo.

Task 2 Recognising and naming shapes

Find and label the basic shapes contained in each of these logos.

You could do this on your own, or three of you could work together to do it. Take a logo each. Find as many shapes in it as you can. Take turns to show each other the different shapes that you find in the logo - such as squares, rectangles, circles, and triangles.

Practise your skills

- Find other logos online, on food packaging, on posters or on TV and identify shapes in these logos.
- Design your own logo using the basic shapes encountered today.
- Use Practice Sheet M2

Activity

Drawing Logos and Flags

Code M3

This activity links to **Award Learning Outcomes** **2.1, 2.2** **and** **2.6**

Introduction

You can see basic geometric shapes in the logos of products and companies. Recognising these shapes gives a greater insight into the how these logos are designed and put together.

What will you learn?

Learning Outcomes

You will be able to:

1. Construct rectangles and circles
2. Draw symbols which incorporate more than one shape

Key Learning Points

1. Shapes
2. Drawing

Materials you will need

- Pictures of a range of logos
- Pencil, compass.

What do you need to know before you start?

1. You need to know how to draw a circle using a compass.
2. You need to know how to draw triangles and rectangles

Task 1: Using a compass to draw a logo

Instructions:

Set the length between the pencil tip of the compass and the point of the compass at 6cm. That length, **6cm**, will be the **radius** of the circle you are going to make. You can measure this using a ruler.

Put the point of the compass on the page. Hold the point firmly in one position. **Rotate the pencil tip around to draw the circle.**

Mark the centre of the circle (where the point was).

Draw three lines from the centre (as shown) to complete the logo.

Task 2: Drawing a logo with two circles

- Look at this symbol. Do you notice that it has two circles? It has an outer circle and an inner circle.

- The two circles start from the **same centre point.**
- The **radius** of the outer circle is longer than the radius of the inner circle.

Now draw the symbol above, using these dimensions:

The radius of the inner circle is 4cm.

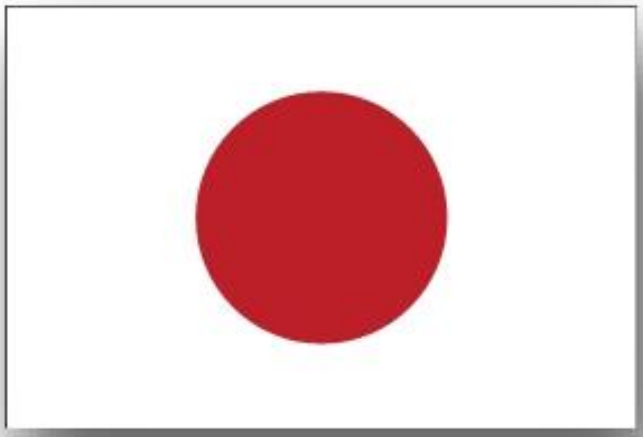
The radius of the outer circle: 6cm.

Task 3: Circles and rectangles

Draw the symbol below, using these dimensions:

Rectangle: Length: 12cm Width: 8cm

Inner circle: Radius: 2cm



Practise your skills

- Practise using your compass to draw circles, with each one having a different radius. This will help you get used to setting your compass accurately.
- Practise using your ruler to draw various rectangles of various sizes.
- Use Practice Sheet M3 to help you develop your skills in drawing basic shapes.

Activity

Calculating Area and Cost

Code M4

This activity links to **Award Learning Outcomes 2.1, 2.3 and 2.7**

Introduction

Working out the area of a lawn or a floor or a wall can be important in everyday life. For example, we need to know the **area** of a floor if we want to know how much carpet or tiling to get for it. If we want to know how much paint to buy for painting a wall, we need to know the **area** of the wall. This Activity will help you with that kind of budgeting.

What will you learn?

Learning Outcomes

You will be able to:

1. Calculate the area of a square and a rectangle.
2. Understand the meaning of a unit^2 – for example, m^2, cm^2 etc.
3. Calculate the cost of covering a surface given its area and cost of the surface per m^2 .

Key Learning Points

1. Area
2. Cost

Materials you will need

- Calculator
- Pencil or pen

What do you need to know before you start?

- We write the area of something like this: $(\text{units})^2$. For example, 3cm^2, 2m^2.
- We call **3cm^2 3 square centimetres**. We call **2m^2 2 square metres**.
- To work out **the area of a rectangle:**

  - measure the length of the rectangle;
  - measure the width of the rectangle; and then
  - multiply the length by the width.

Getting started

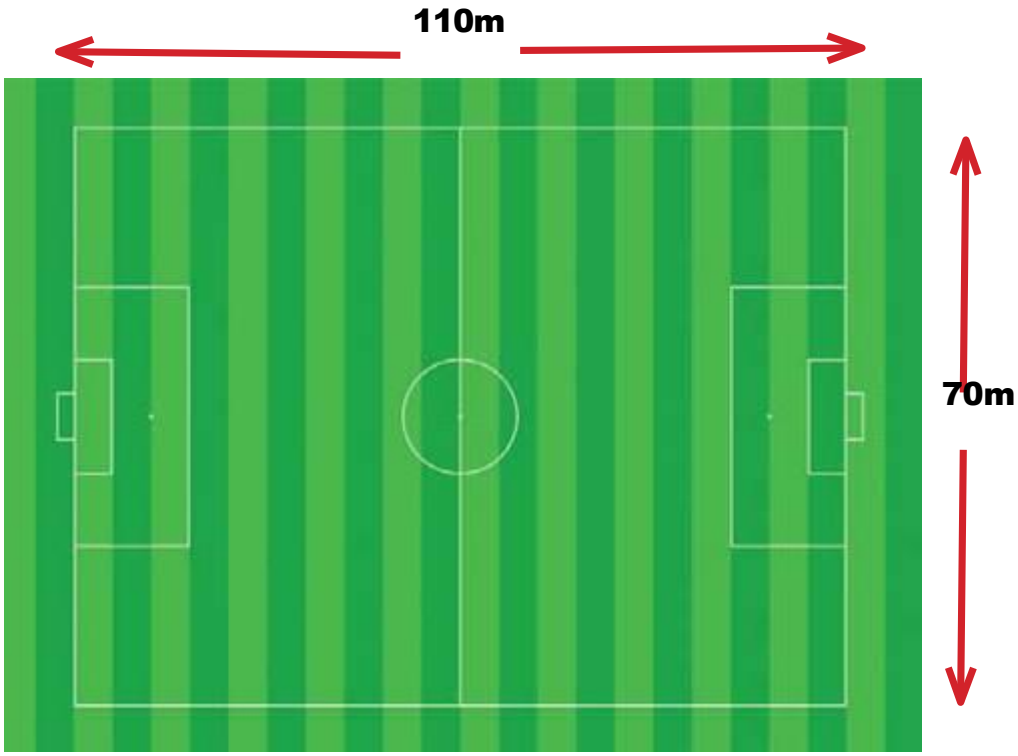
Task 1: New grass surface for soccer pitch (1)

This is an example of working out the area of rectangle.

Read and discuss this example with your group.

The soccer pitch at the San Siro in Milan (Italy) is co-owned by Inter Milan and AC Milan. It has to be replaced 4 times each season because it is used for a large number of matches. Each match causes some damage to the playing surface. This means that after a certain amount of time a the pitch needs a new grass surface.

Look at the picture of the football pitch below.



You will see that the length of the pitch is 110m and the width of the pitch is 70m.

1. **What is the area of the pitch?** _____

A new grass surface costs €5 per square metre.

2. **How much it would cost to buy a new grass surface for the pitch?** _____

Now look at the answer on the next page, and see how to work it out.

1. **What is the area of the pitch?**
   Answer: 7,700 m^2

To work it out remember that **Area = Length x Width**. So, to get the area of the pitch we must multiply the length by the width. That is, 110m x 70m.

110m x 70m = 7,700 m^2. So the area of the pitch is **7,700 m^2**

2. **How much it would cost to buy a new grass surfac for the pitch?**
   A new grass surface costs **€5 per square metre.**
   Answer: €38,500

The staff need 7,700 $m_{\cdot}$ of grass surface.
Each m^2 costs €5.
So the cost of 7,700 m^2 is
7,700 x 5 = €38,500.

Task 2: New grass surface for soccer pitch (2)

The AC Milan manager wants make the pitch wider so that his wingers have more space during a match. To do this he changes the width of the pitch to 75m.

The length of the pitch stays the same at 110m.
The cost of the new grass surface is still €5 per m^2.

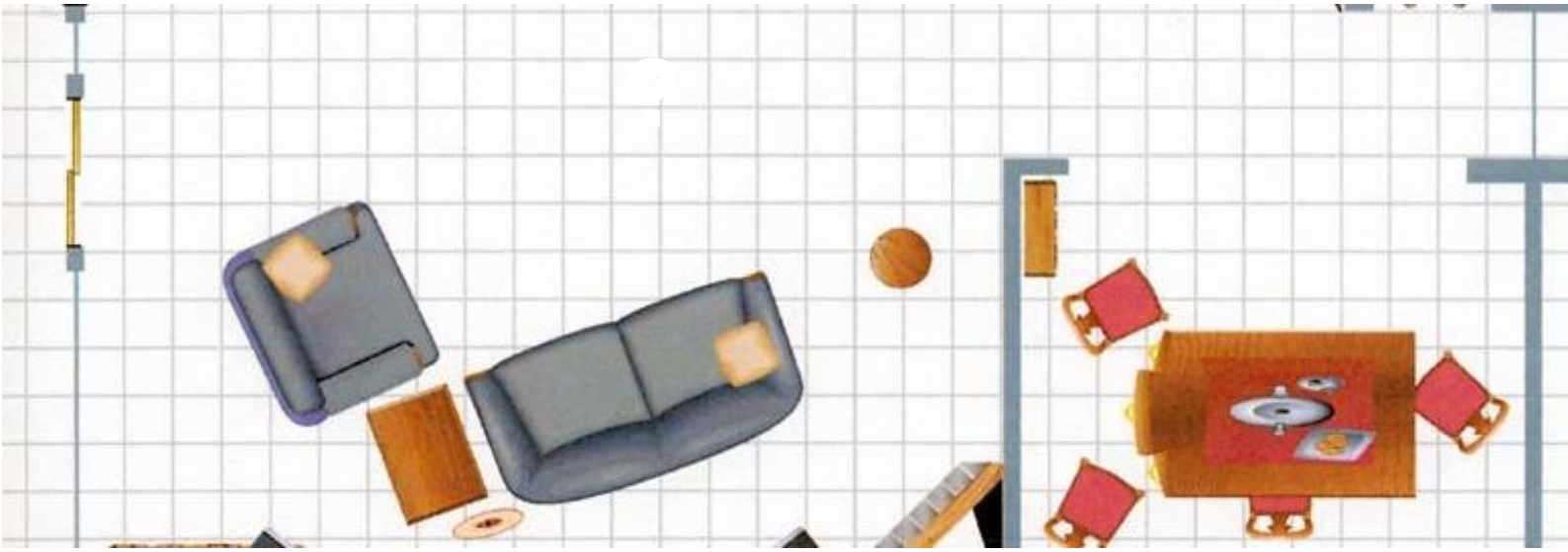
What is the **new area** of the pitch?_____

How much would it **cost** to buy a new grass surface for it?_____

Practise your skills

- Practice Sheet M4

Activity Creating models of furniture (1) Code M5



This activity links to **Award Learning Outcomes** **2.1, 2.2, 2.3, 2.6 and 2.7**

Introduction

Finding the area of objects is important in real life tasks such as designing the structure and layout of a room. For example, you would calculate area to fit furniture into certain parts of the room, or for measuring how much carpet you would need for a floor, or for finding a TV unit with the right dimensions for your TV.

What will you learn?

Learning Outcomes

You will be able to:

1. Calculate the area of basic shapes such as rectangles and triangles.
2. Create 2-D representations of rectangular and triangular shaped furniture.

Key Learning Points

1. Area
2. Language of geometry

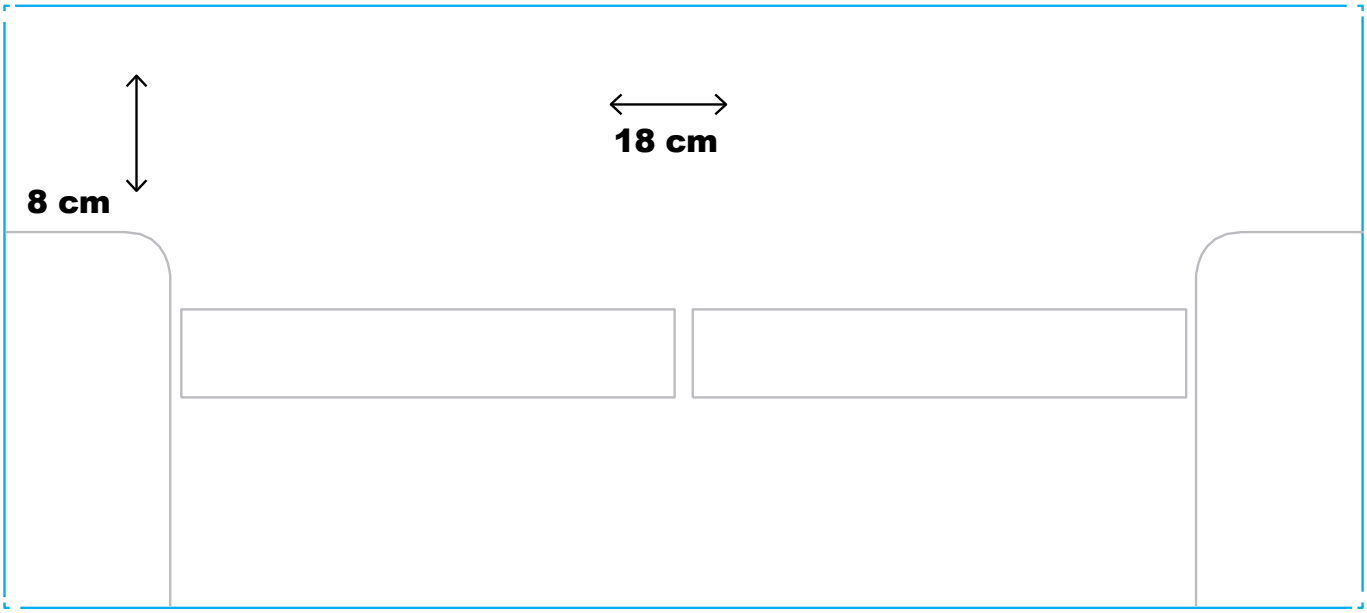
What do you need to know before you start?

Area is recorded in (units)^2 e.g. cm^2, m^2, etc.

The area of a rectangle is measured by multiplying the length by the width.

Getting started

Task 1 - Example: Draw a couch and find its area



Draw a straight horizontal line of length 18 cm.
At each end of this line draw a line perpendicular to it of length 8 cm. Finally, draw another horizontal line (length 18 cm) joining the end of one of the 8 cm lines to the other 8 cm line.

What is the area of that couch? _____

You will find the answer on the next page. Read through the steps to see how you would calculate the area of the couch.

What is the area of the couch?

nswer: 144 cm^2

This is how to work it out:

The **area of a rectangle = Length x Width**

So, the area of the couch = 18cm x 8cm

18cm x 8cm = 144 cm^2

Task 2: Drawing two-dimensional models of furniture

- Choose two pieces of furniture from the list below. Draw a 2-D model of those two pieces of furniture, using the measurements given below.

- Then work out the area of each.

Couch -	Length: 18 cm	Width: 8 cm
Shelving unit -	Length: 10cm	Width: 6 cm
Chair -	Length: 9 cm	Width: 9 cm
Table -	Length: 12 cm	Width: 5 cm
TV set -	Length: 7 cm	Width: 5 cm

Task 3: Know your lines and angles

Parallel Lines

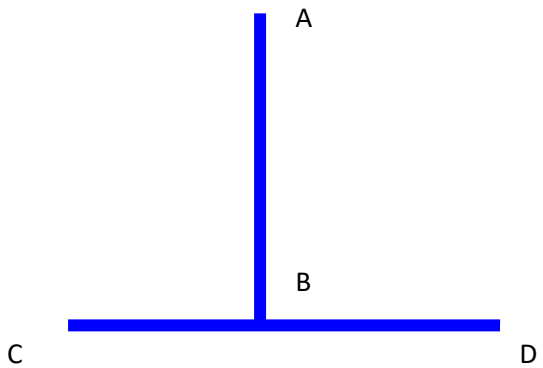
If two lines do not intersect, then the lines are said to be **parallel**.

For example, AB is parallel to CD and we write it as $AB \parallel CD$.

Arrows are placed on the lines *AB* and *CD* to indicate that they are parallel.

Perpendicular lines: 'At right angles'

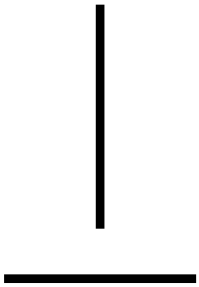
Perpendicular means "at right angles". A line meeting another at a right angle, or 90°, is said to be **perpendicular** to it.



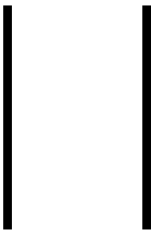
The line AB is perpendicular to CD and we write it as AB ⊥ CD

Now you try this.

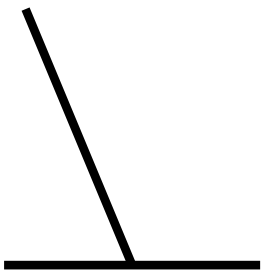
Look at the following pairs of lines. Describe them using the correct maths language.



1. These lines are _____ to each other.

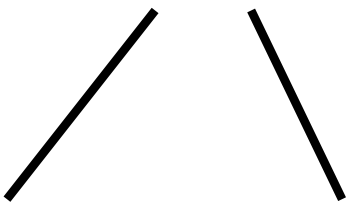


2. These lines are _____to each other.



3. Put a circle around the word that describes these lines:

perpendicular parallel neither



4. Put a circle around the word that describes these lines:

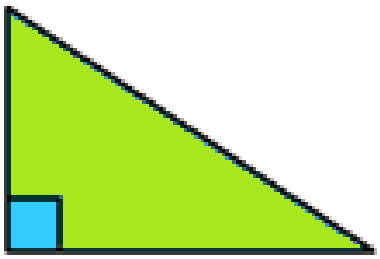
perpendicular parallel neither

Task 4: Know your angles

Angles are measured in degrees (°)

As the angle increases, the name of the angle changes.

Type of Angle	Description
Acute Angle	an angle that is less than 90°
Right Angle	an angle that is 90° exactly
Obtuse Angle	an angle that is greater than 90° but less than 180°
Straight Angle	an angle that is 180° exactly
Reflex Angle	an angle that is greater than 180
Full Rotation	A full rotation around the centre of a circle is 360°.



This triangle is a right-angled triangle.

The longest side, opposite the right angle, is called the **hypotenuse.**

Now you try this.

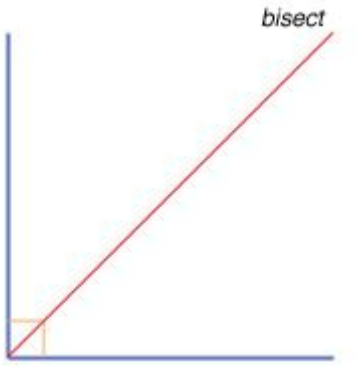
- **Look around the room**. Notice lines and angles in what you see: for example, in the furniture, the floor, the windows, the open door, the pictures, the hands of the clock, the light hanging from the ceiling, the papers, pens, phones, books on the table and how they are arranged together. **Can you see at least one example of the different types of angles mentioned above?**

- Construct (draw) a variety of shapes according to criteria your tutor will give you. In each case, label each of the **angles**, using its correct name to show what type of angle it is.

- Draw a right angled triangle according to the measurements your tutor will give you. Label the side opposite the right angle, using its correct name.

Task 5: Bisecting an angle

- Bisect means to divide into two equal sections or two equal halves.
- If we bisect a 90° angle, we will have two 45° angles.



Now you try this.

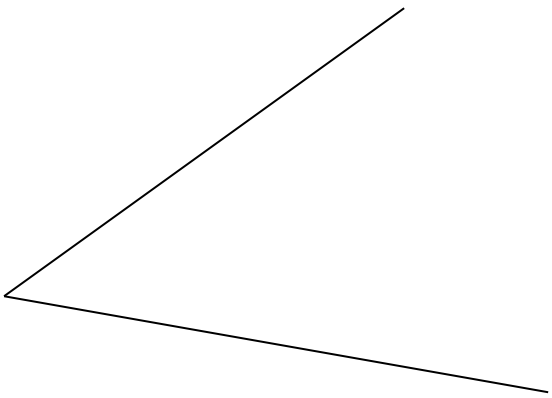
We use a straight edge and compass to bisect a line segment or an angle.

Look at the film on the web http://www.mathopenref.com/constbisectangle.html

The film shows how to bisect an angle with a ruler and a compass.

(a) Watch the film a few times and write out the procedure step by step.

(b) Using the steps you have written down bisect the following angle. Show all your construction lines clearly.



Task 6: Finding the area of a triangle

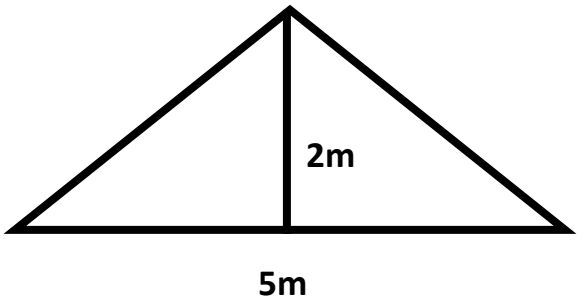
We can find the area of a triangle by using the following formula:

½ base x ⊥ height

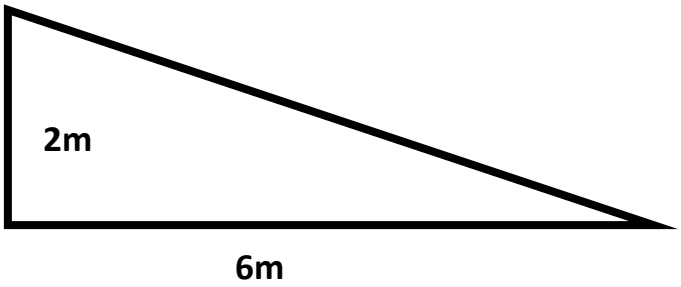
Remember: ⊥ means **perpendicular.**

Use this formula to work out the area of the following triangles:

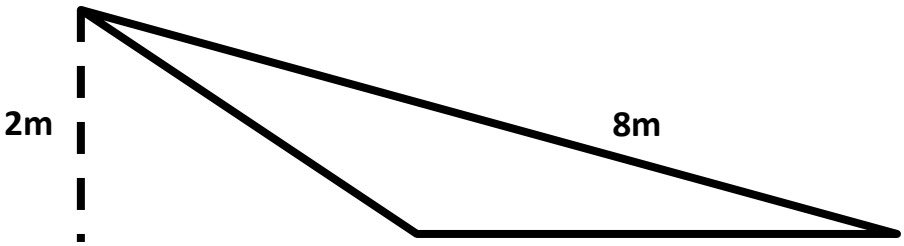
1.



2.



3.



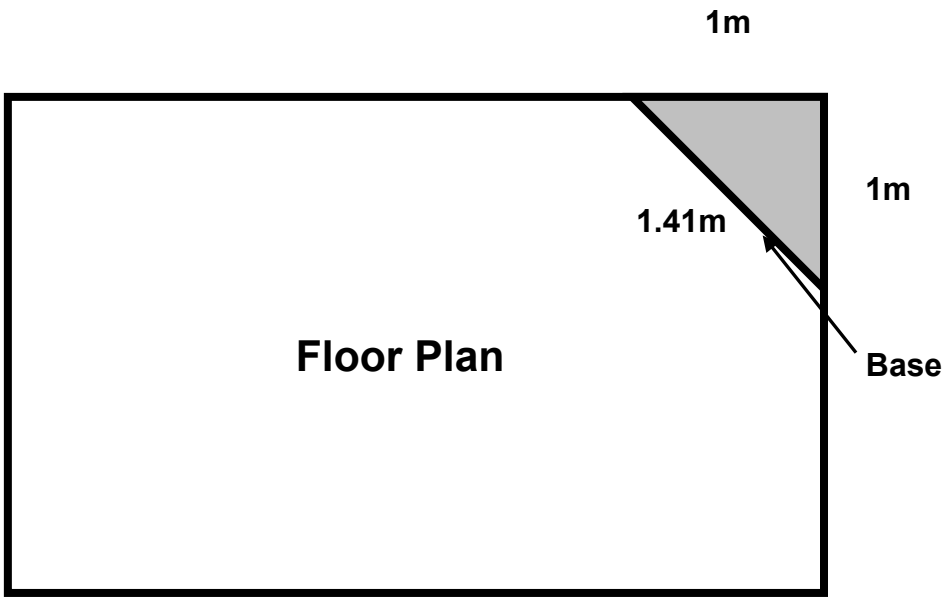
Task 7 Triangles and furniture

In everyday life we often see triangular tables or shelving units placed in the corner of rooms.

Look at this floor plan. It shows a triangular shaped corner unit.

The measurements are given on the diagram.

Can you calculate the area of the floor that the corner unit will take up?

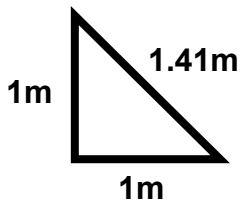


Solution

The area of the corner unit on the ground can be calculated using the formula

$^1/_2$ Base X ⊥ Height

Draw the piece of furniture as a triangle. The base is 1m, and the perpendicular height is 1m.



⊥ Height = 1m
Base = 1m
So $^1/_2$ base = 0.5m

The area of the triangular unit is

1m x 0.5m = 0.5m^2

So you need 0.5m^2 of floor space to fit the corner unit.

Practise your skills

- Look up the dimensions of furniture in a catalogue or on the internet. 'Dimensions' means length and the width. It could also include the height.

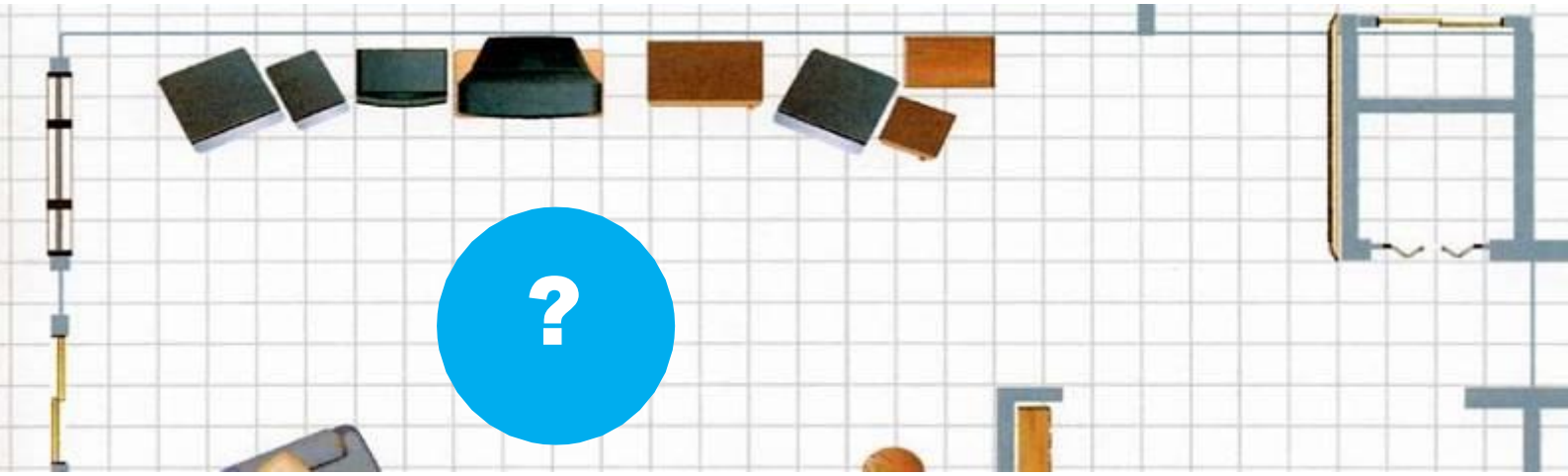
- Measure the length and width of furniture in your home or in the centre and try to work out the area of the furniture.

- Practice Sheet M5

Activity

Investigating Pi

Code M6



This activity links to **Award Learning Outcomes 2.1, 2.2 2.3, 2.6 and 2.7**

Introduction

Finding the area of objects is important in real life tasks such as designing the structure and layout of a room. For example, you would calculate area to fit furniture into certain parts of the room, or for measuring how much carpet you would need for a floor, or for finding a TV unit with the right dimensions for your TV.

Pi (π) is a very important number and you will come across it a lot in the measurement activities. But what is Pi? This activity will help answer that question.

What will you learn?

Learning Outcomes

You will be able to:

1. Calculate the area of basic shapes such as rectangles and circles.
2. Create 2-D representations of rectangular and circular shaped furniture.
3. Understand what Pi is and how to use it.

Key Learning Points

1. Pi (π)

Materials you will need

- 5 different size circles
- String
- Protractor
- Pencil or pen; ruler

What do you need to know before you start the activity?

Area is recorded in (units)^2 , for example 3 cm^2, 2m^2.

We measure the area of a rectangle by multiplying the length by the width.

We measure **the area of a circle** by multiplying **pi** (3.14) by the **square** of the circle's **radius.**

Maths symbols

Pi is 3.14. The symbol for pi is **π**.

The symbol for **area** is **A** .

The symbol for **radius** is **r** .

So, the way we write how to measure the area of a circle is like this:

$A = \pi r^2$.

$A = \pi r^2$ is a **formula** for working out the area of a circle.

It tells us that we measure the area of a circle by multiplying pi (3.14) by the square of the circle's radius.

Getting started

A truly magical number

Pi in the maths world is written as the Greek letter π. It is the number **3.14159 .....**

Pi has an infinite number of decimal places with no repeating pattern. No one knows all of the decimal places of Pi. It has been **rounded off to 2 decimal places** and given the value **3.14.**

Tip: **Remember this formula:** π **= 3.14.**

The symbol for Pi is π. So wherever you see π. in a calculation, **insert the number 3.14**.

Task 1: Measuring circles and finding Pi

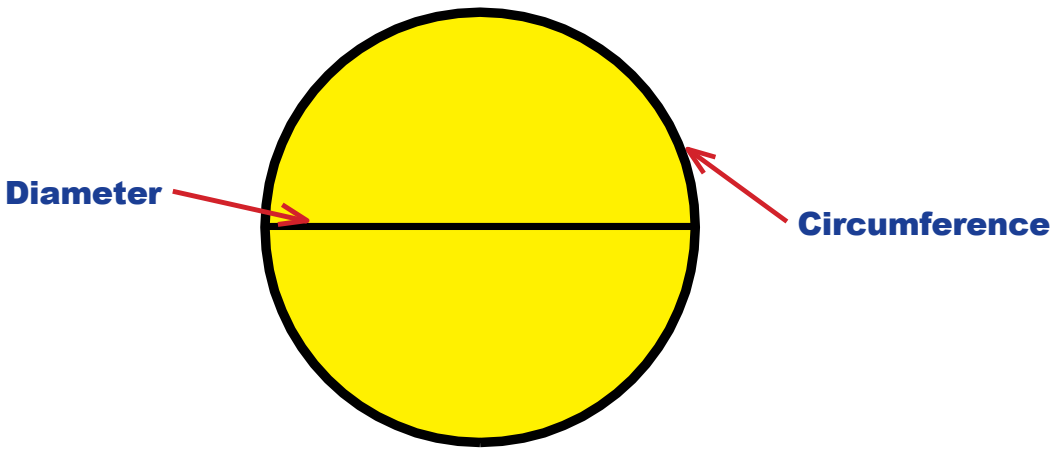
Get or make 5 circular shapes of different sizes. For example:

- 5 circular plates; or
- the bottom end of cups and mugs or bottles; or
- draw 5 circles of different sizes. Make sure to draw them accurately as circles!

Now do these measurements for each of the 5 circles:

1. Measure the circumference of each circle.

Place a piece of string straight and tight across the middle of the circle as in this illustration.



Then **measure** that piece of string with the ruler. Write that measurement in the **diameter** column in the table below.

Repeat this for the **5** different sized circles. Be **accurate** in your measurements.

2. Measure the circumference of each circle.

Using a piece of string to measure how long the circumference is. Do this by putting the string around the circle, and then measure that length of string on a ruler. Write the measurements in the 'circumference' column of the table below.

3. Now, for each of the 5 circles, **divide the circumference by the diameter**.

4. Complete the table below using the measurements from your 5 different circles.

Circle	Diameter measures:	Circumference measures:	Circumference divided by diameter is:
Circle 1			
Circle 2			
Circle 3			
Circle 4			
Circle 5			

If you have done the measurements accurately you will find that when you divide the circumference by the diameter you got **3.14** or π.

What is Pi π ?

Every circle regardless of its size will always produce the magic number π when you divide the circumference by its diameter.

For the calculations in this section of the pack, π = 3.14

Task 2 - Example: area of a circular coffee table

Draw a circular coffee table.

Make the **radius** of this coffee table **5cm.**
To draw it, get your compass ready. Set the length between the pencil tip of the compass and the point of the compass at 5cm (the radius of the table). Put the point of the compass on the page and rotate the pencil tip around to draw the circle.

Look at this circular coffee table. The table top has a **radius** of 5 cm.

What is the **area** of the coffee table top? _____

Task 3: Find and name the shapes

- **Draw a 2-D model** of any the pieces of furniture from the list below that you haven't drawn yet.

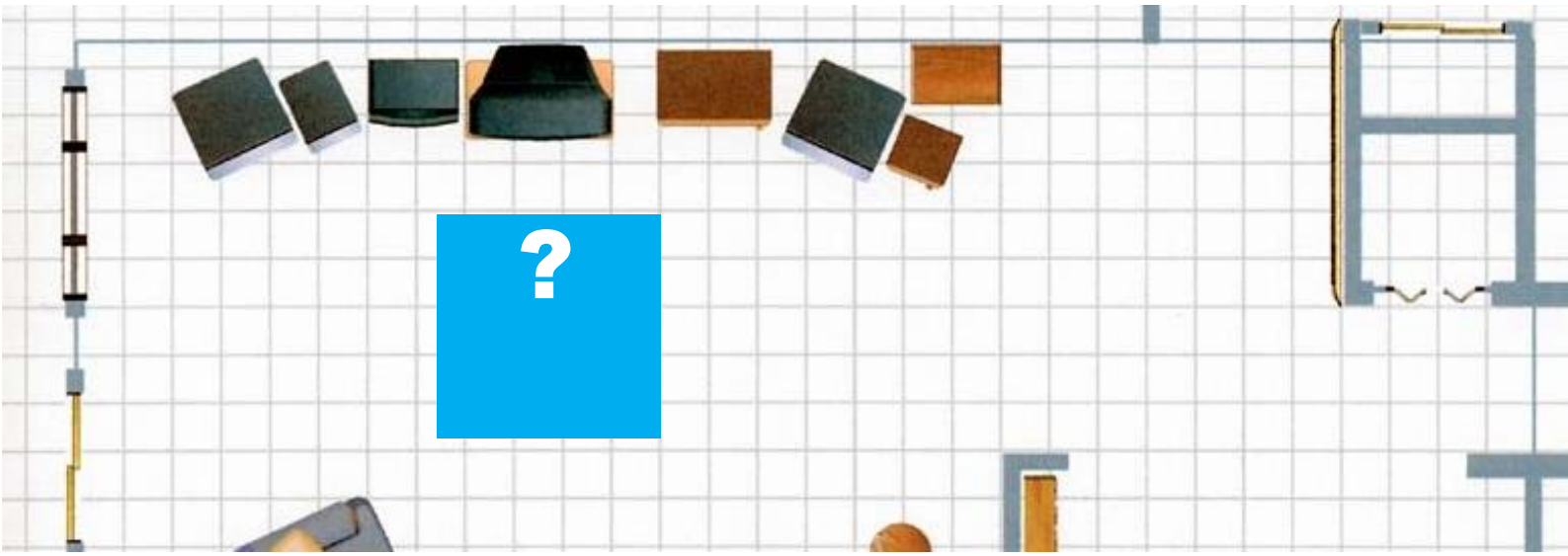
- **Work out the area** of each.

Couch -	Length: 18 cm	Width: 8 cm
Shelving unit -	Length: 10 cm	Width: 6 cm
Chair -	Length: 9 cm	Width: 9 cm
Table -	Length: 12 cm	Width: 5 cm
TV set -	Length: 7 cm	Width: 5 cm
Round Rug -	Radius: 6 cm	

Practise your skills

- Practice Sheet M6 will help you develop your skills in finding the area of objects.

Activity Creating models of furniture (2) Code M7



This activity links to **Award Learning Outcomes 2.1, 2.2, 2.3, 2.6 and 2.7**

Introduction

Finding the area of objects is important in real life tasks such as designing the structure and layout of a room. For example, you would calculate area to fit furniture into certain parts of the room, or for measuring how much carpet you would need for a floor, or for finding a TV unit with the right dimensions for your TV.

What will you learn?

Learning Outcomes

You will be able to:

1. Calculate the area of basic shapes such as rectangles and circles.
2. Create 2-D representations of rectangular and circular shaped furniture.

Key Learning Points

1. Area of square

Materials you will need

- Calculator
- Ruler
- Compass
- Pencil or pen
- Protractor

What do you need to know before you start the activity?

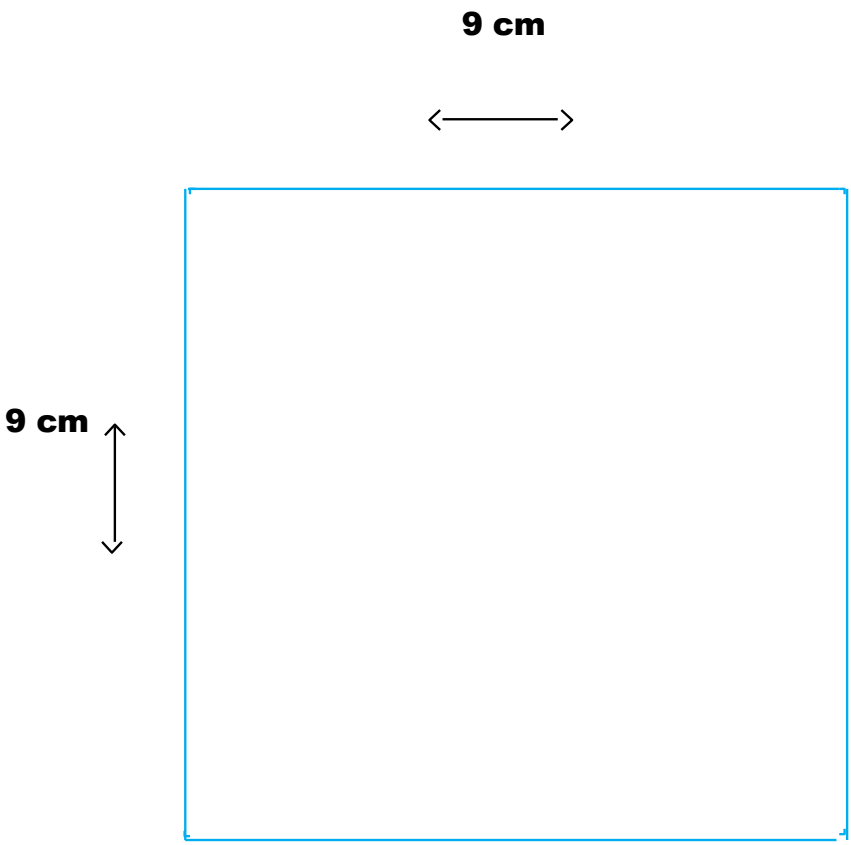
Area is recorded in $(\text{units})^2$, for example 2cm^2, 3m^2.

The area of a rectangle is measured by multiplying the length by the width.

The area of a square is also measured by multiplying the length by the width (the length and the width will be the same in a square)

Getting started

Task 1: Example: Area of square



Draw the square seat surface of a chair. The length and the width of the square surface are the same: they are both 9cm.

First, draw a straight horizontal line of length 9 cm. At each end of this line draw a line perpendicular to it of length 9 cm also. Finally, draw another horizontal line (length 9 cm) joining the end of the two lines you have just drawn.

Find the area of the square you have drawn.

Task 2: Find and name the shapes

- Look at the list below. Draw a 2-D model of two of the pieces of furniture that you haven't completed yet and find the area of each.

Coffee Table top -	Radius: 5 cm	
Couch -	Length: 18 cm	Width: 8 cm
Shelving unit -	Length: 10 cm	Width: 6 cm
Chair -	Length: 9 cm	Width: 9 cm
Table -	Length: 12 cm	Width: 5 cm
TV set -	Length: 7 cm	Width: 5 cm
Rug -	Radius: 6 cm	

Practise your skills

- Look up the dimensions of furniture on the internet or measure the length and width of furniture in your home and find the area of the furniture.

- Do more drawings of the furniture from the list above, using your compass and ruler and measuring accurately.

- Practice Sheet M7 will help you develop your skills in finding the area of objects.

Activity

Calculating area

Code M8

This activity links to **Award Learning Outcomes 2.1, 2.3, 2.6 and 2.7**

Introduction

When buying carpet or wooden flooring, the cost is in euro per m^2 - for example, €5 per m^2 or €7.50 per m^2. To figure out the cost of carpet for a room, you must first measure the area of the room and then use that figure to work out how much carpet you need and what the cost will be. This is vital when budgeting for DIY tasks.

What will you learn?

Learning Outcomes

You will be able to:

1. Calculate the area of a rectangle
2. Understand the meaning of a unit^2 - for example, m^2, cm^2 etc.
3. Calculate the cost of covering a surface given its area and knowing the cost per m^2.

Key Learning Points

1. Area
2. Cost

Materials you will need

- Calculator
- Pencil or pen
- Ruler
- Protractor

Task 1

- The length of the bedroom floor is 8m and width is 5m. You want to put wooden flooring in this room. Wooden flooring costs €7 per m^2.

1. What is the **area** of the bedroom?

_____

2. How much would wooden flooring for this room **cost**?

_____

Task 2

- Make a model of the floor of a room. Cut out a rectangular area with length 40cm and width 30cm.
- Find the area of your model floor.

Practise your skills

- Practice Sheet M8 will help you develop your skills in finding the cost of flooring.

Activity

Calculating Actual Distance

Code M9

This activity links to **Award Learning Outcomes 2.1, 2.4, 2.5 and 2.7**

Introduction

Drawing an object or an area **to scale** is commonly seen in everyday life in, for example, maps, models of buildings and plans of buildings. The ability to convert a measurement in a scaled drawing to its **actual size** would be most commonly used when finding **distance** from one place to another on a map.

What will you learn?

Learning Outcomes

You will be able to:

1. Calculate the actual distance from one point to another when given a map which is drawn to a given scale.
2. Convert cm to metres or kilometres.
3. Recognise what scale is being used and how to use it to gather vital information.

Key Learning Points

1. Scale
2. Map

Materials you will need

- Calculator
- Pencil or pen
- Ruler
- Map

What do you need to know before you start?

Scale is represented using either side of a colon, **for example** 1:5 1:200 1:20 1:500 (A colon is the symbol **:**)

Take 1:200 as an example of a **centimetre scale** on a map: This means that every 1 centimetre on a map represents **200** centimetres in real life.

Task 1: Example of scale

Planning a journey using a map

When planning a journey using a map, it is important to know the distance you will be travelling. You can measure the distance on the map and use the scale given on the map to find the actual real-life distance.

The Map of Italy (below) uses this scale: **1cm on the map represents 100 kilometres** in actual distance.

So if you measured a distance of **6cm** on the map, this would represent a distance of **600 kilometres** in real life.

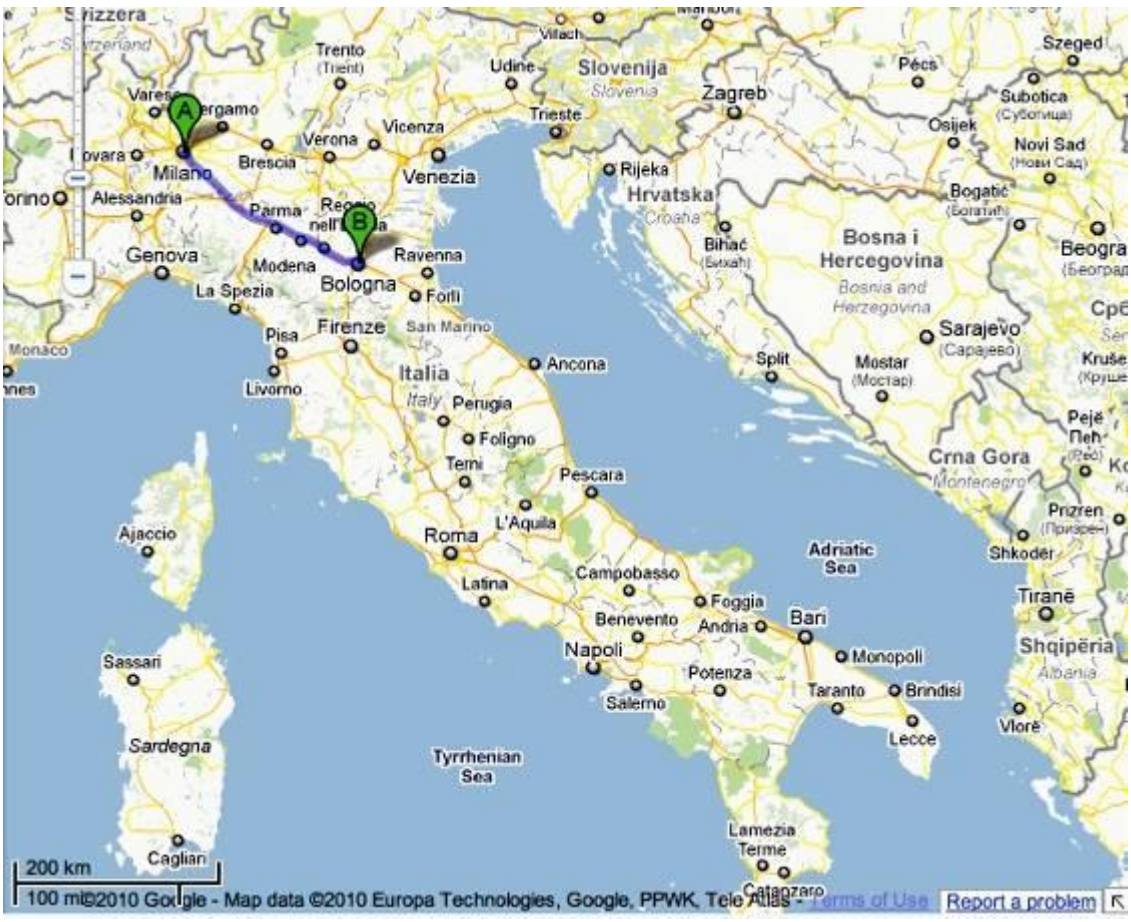
Use that scale to work out these actual distances:

What is the distance (in real life) between:

(a) Rome and Naples?

(b) Milan and Bologna?

(c) Livorno and Florence?



Task 2: Finding distance on a map

- Using the same map and same scale, work out the actual distance between these places:

(a) Bologna and Rome : _____

(b) Salerno and Brindisi : _____

(c) Palermo and Messina : _____

Practise your skills

- Use Practice Sheet M9 to apply what you have learned about scale.

Activity

Calculating volume

Code M10

This activity links to **award learning outcomes 2.1, 2.4 and 2.7**

Introduction

Finding the volume of a cylinder is important in activities such as preparing food, for example when we work out how many millilitres of yoghurt a yoghurt tub can hold. Another example from everyday life where we need to work out the volume of a cylinder is in plumbing - for example, working out how much water a cylindrical boiler hold.

What will you learn?

Learning Outcomes

You will be able to:

1. Calculate the volume of a cylinder.
2. Understand the meaning of a unit^3 : for example, 3 m^3, 10cm^3.
3. Convert cm^3 to ml and ml to litres.

Key Learning Points

1. Volume
2. Units

Materials you will need

- Calculator
- Pencil or pen

What do you need to know before you start?

Volume is recorded in $(units)^3$, for example cm^3, m^3.

The **volume of a cylinder** is measured by multiplying **pi (3.14)** by the **square of the radius** by the **height of the cylinder.**

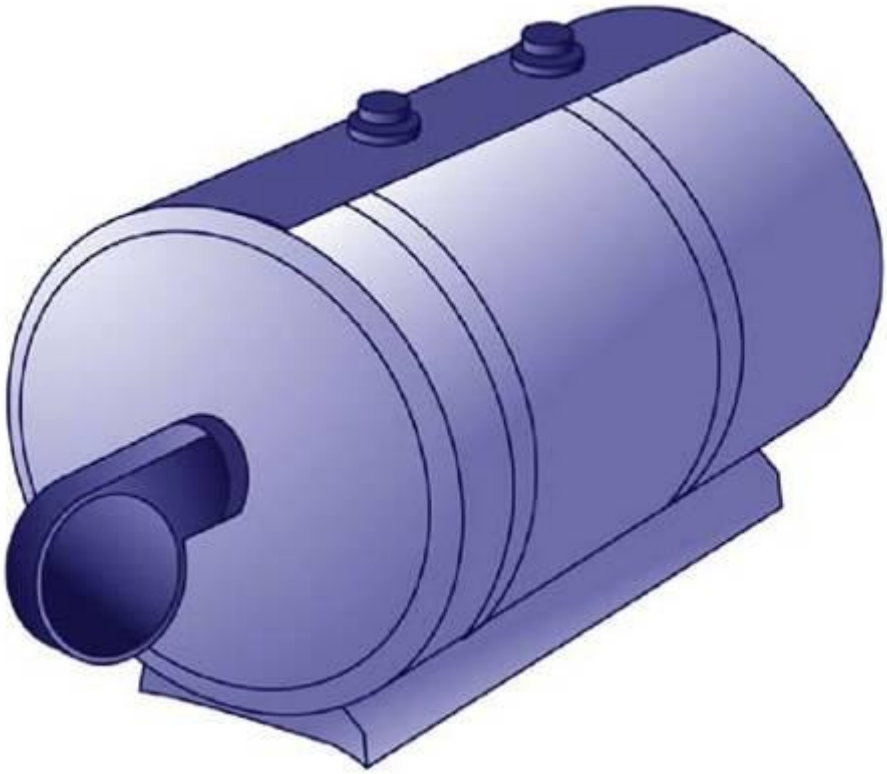
Volume of cylinder = $\pi r^2 h$

Getting started

Task 1: Boilers

Example of working out volume of cylinders

Many boilers in the home are in the shape of cylinders. These boilers store water and heat it so it can be used for showers, baths, radiators and washing dishes in the sink. As the water heats up, it expands. For this reason, the boiler cannot be full to the brim with water, otherwise the expanding water may cause an explosion.



A plumber is installing a boiler in a home. The water inside it can rise to a maximum **height** level of **50 cm**; at that point no more water will be pumped in. The **radius** of the boiler is **30 cm.**

What is the maximum volume of water that can be stored in the boiler?

Work in pairs to discuss this and to try to work it out.

Then look at the answer and explanation on next page.

Answer: The maximum amount of water that can be stored in the boiler is **141,300 cm^3.** This is the same as 141,300ml or 141.3 **Litres.**

Tip: 1 cm^3 = 1 ml
1,000 ml = 1 Litre

Remember:
Volume of cylinder = $\pi r^2 h$
(3.14 multiplied by **radius squared** multiplied by **height**)

So:

Volume of the boiler = 3.14 x $(30)^2$ x 50

Volume of the boiler = 3.14 x 900 x 50

Volume of the boiler = 2,826 x 50

Volume = 141,300 cm^3

(141,300 cm^3 is the same as 141.3 Litres)

Task 2: Volume of cylinder

- The plumber decides to get the next biggest boiler. This has a radius of **40cm** and the max height of the water is **60cm.** **What** is the **maximum volume of water** that can be in the boiler at any given time?

Practise your skills

- Use Practice Sheet M10 to apply your knowledge of volume of cylinders.

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