

A close-up photograph of several green fern fronds. The fronds are long and feathery, with many small, pointed leaflets. They are set against a dark, blurred background, which makes the green color of the ferns stand out. The lighting is soft, highlighting the texture of the leaflets.

RICH MATHEMATICAL TASK BOOKLET

# MEASUREMENT

## Perimeter, Area

YEAR 5/6  
EVEN YEARS

## Copy Masters



Bobbie and Jodie Hunter

**Task 1**

Cooper has broken his ruler but believes you can use it to accurately measure. Do you agree or disagree?

Using the broken rulers, measure the perimeter for each of these rectangles.

Can the rectangles have the same perimeter?

A) Record the estimate and measurement in centimetres. Estimate the perimeter first. Use the broken ruler to find the perimeter and record the measurement:

Estimate –

Perimeter –

B) Record the estimate and measurement in centimetres. Estimate the perimeter first. Use the broken ruler to find the perimeter and record the measurement:

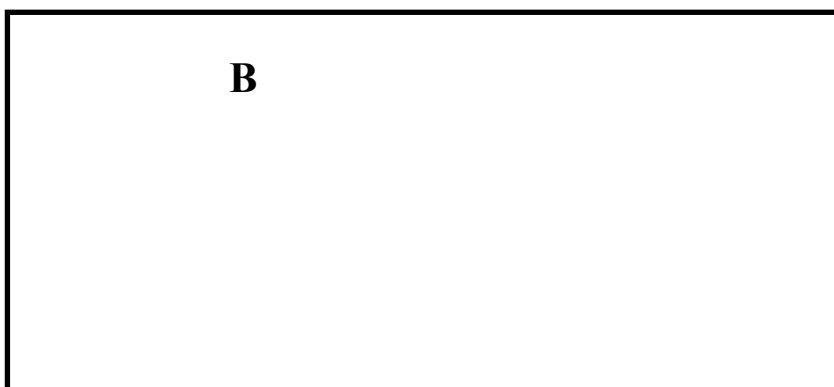
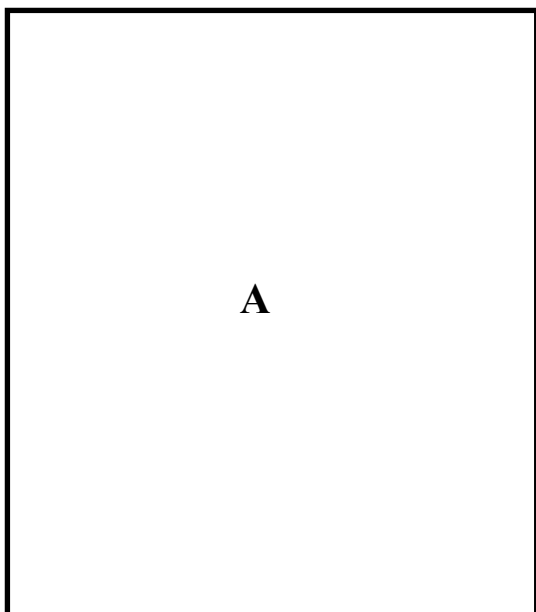
Estimate –

Perimeter –

C) Record the estimate and measurement in centimetres. Estimate the perimeter first. Use the broken ruler to find the perimeter and record the measurement:

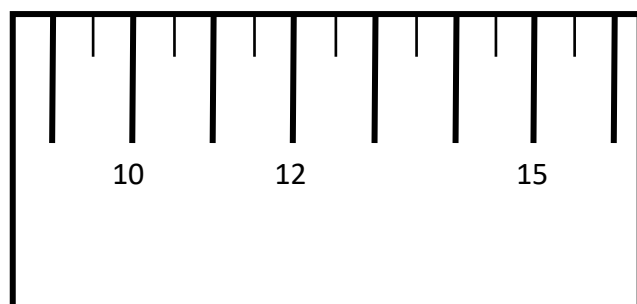
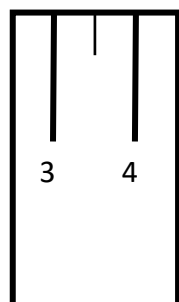
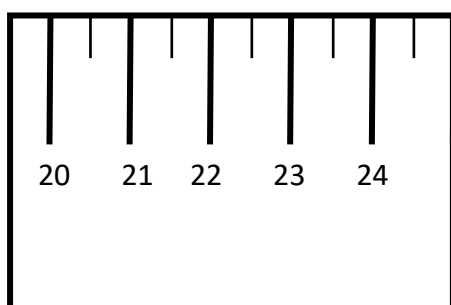
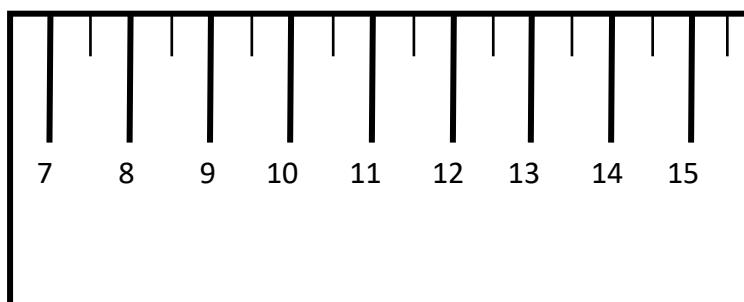
Estimate –

Perimeter –

**Task 1**

*Year 5-6 Copy Masters: Measurement.*

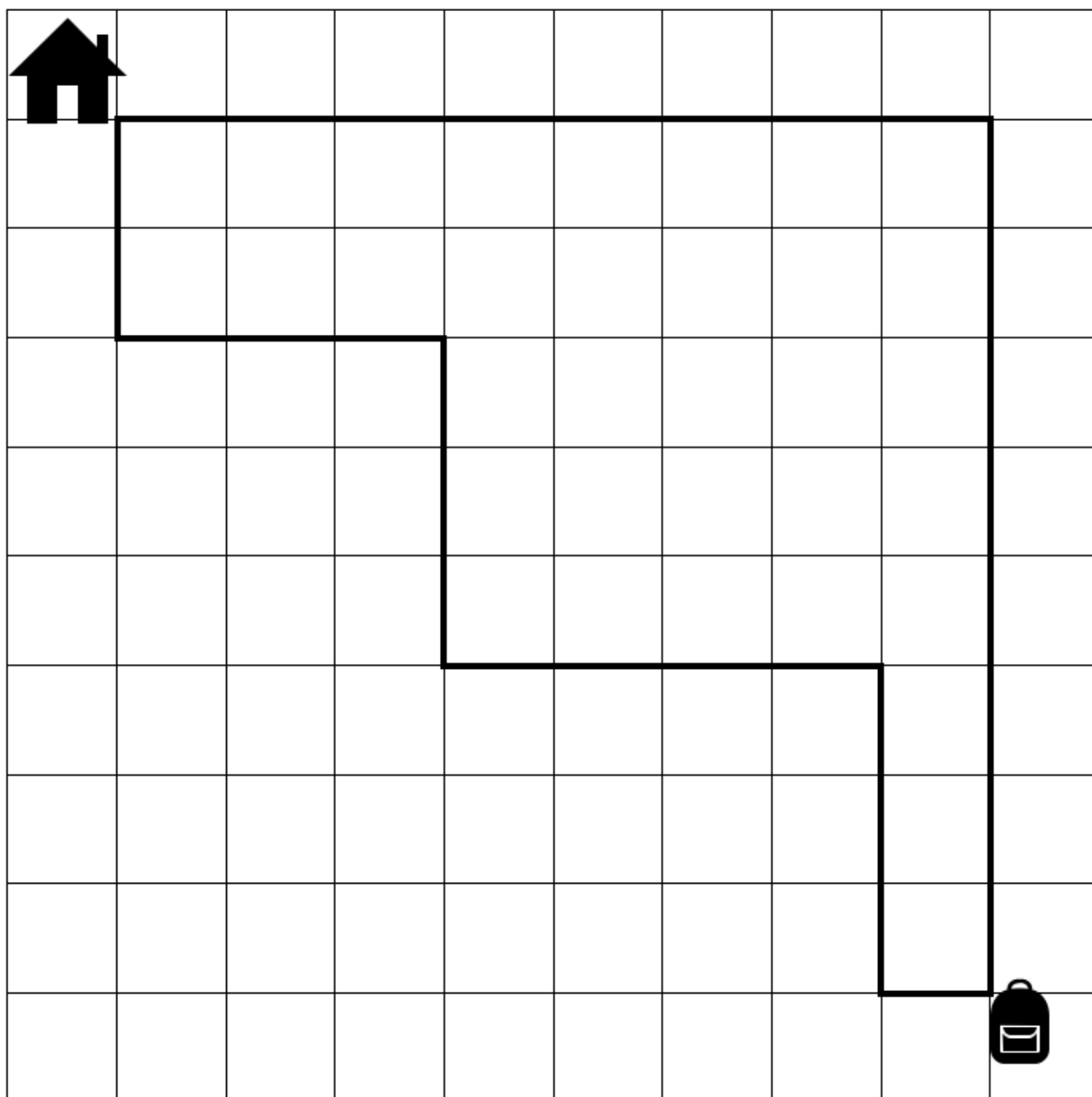
**Task 1 (resource)**



**Task 1 (independent)**

Frankie walks different routes to school each day. She believes they are the same distance. Do you agree or disagree with Frankie?

Use materials to measure and check.



**Task 2**

Estimate how long the \_\_\_\_\_ is and record the estimate and measurement unit.

Estimate -

Use a measuring tool to measure the length and record the measurement count and measurement unit.

Measurement –

Convert the measurement to a different unit.

Measurement conversion –

Estimate how long the \_\_\_\_\_ is and record the estimate and measurement unit.

Estimate -

Use a measuring tool to measure the length and record the measurement count and measurement unit.

Measurement –

Convert the measurement to a different unit.

Measurement conversion –

Estimate how long the \_\_\_\_\_ is and record the estimate and measurement unit.

Estimate -

Use a measuring tool to measure the length and record the measurement count and measurement unit.

Measurement –

Convert the measurement to a different unit.

Measurement conversion –

*Year 5-6 Copy Masters: Measurement.*

**Task 2**

Estimate how long the \_\_\_\_\_ is and record the estimate and measurement unit.

Estimate -

Use a measuring tool to measure the length and record the measurement count and measurement unit.

Measurement –

Convert the measurement to a different unit.

Measurement conversion –

*Year 5-6 Copy Masters: Measurement.***Task 2 (independent)**

Estimate the length of each object. Check your estimation with a measuring tool. Make sure you record the measurement unit.

Estimate –

Measurement –

Estimate –

Measurement –

Estimate –

Measurement –

Estimate –

Measurement –

Estimate –

Measurement –

*Year 5-6 Copy Masters: Measurement.*

**Task 3**

The local council is designing a pop up modular building for an art show. They are asking for help and suggestions for designs. It will be constructed using square modules. It will be built using square modules.

The squares are scaled so that 1 cm represents 1 metre.

Use the squares to make different designs for the pop up building. Draw around the outline and record the perimeter.

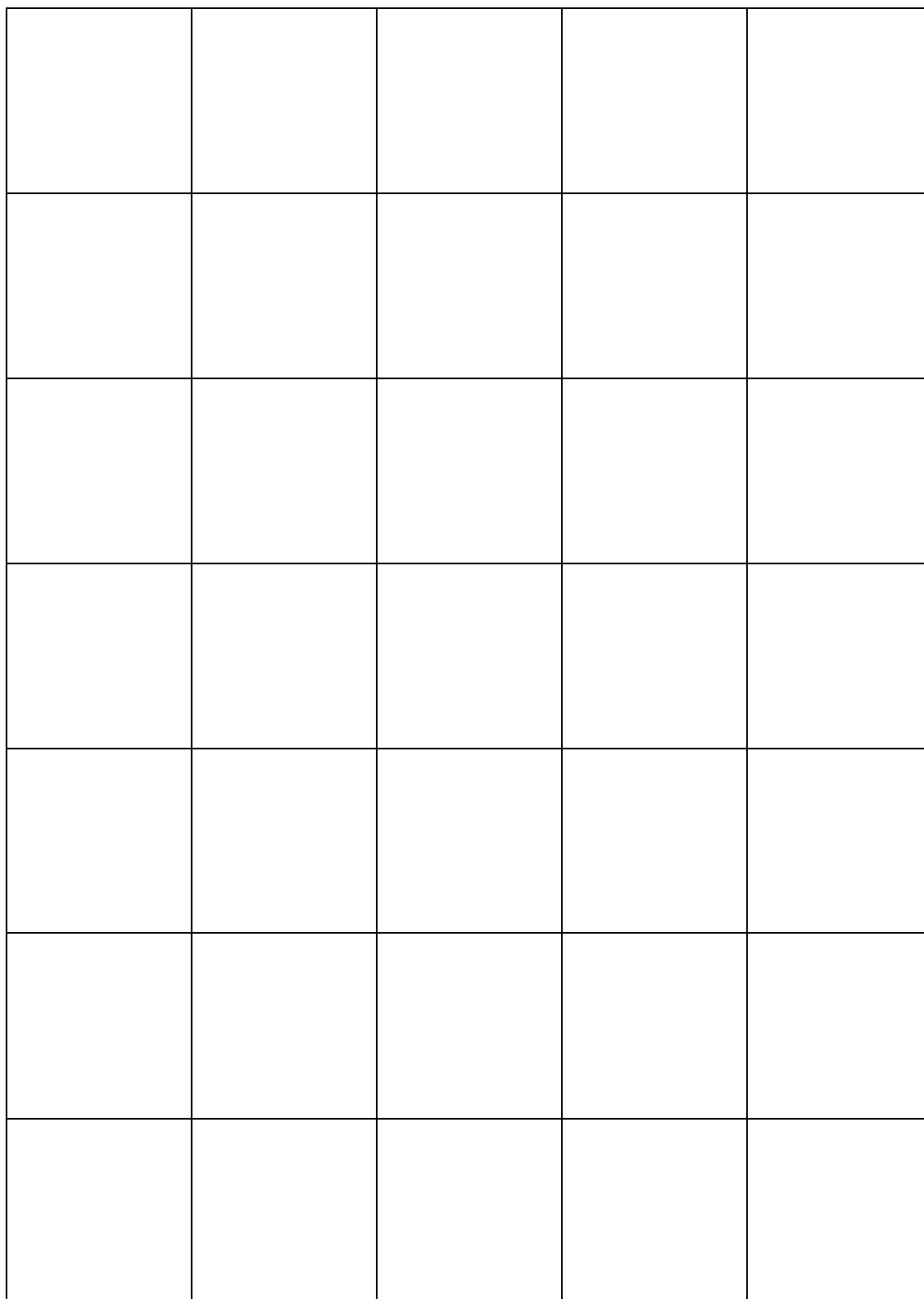
What is the smallest perimeter you can make?

The venue needs to maximise on wall space to ensure the most art can be put on display.

What is the longest perimeter you can make?

*Year 5-6 Copy Masters: Measurement.*

**Task 3 (3cm x 3cm squares)**



**Task 3 (independent)**

The local council is designing a pop up modular building for an art show.

They are asking for help and suggestions for designs. It will be constructed using square modules. It will be built using square modules. The squares are scaled so that 1 cm represents 1 metre.

Use the squares to make different designs for the pop up building.

Draw around the outline and record the perimeter.

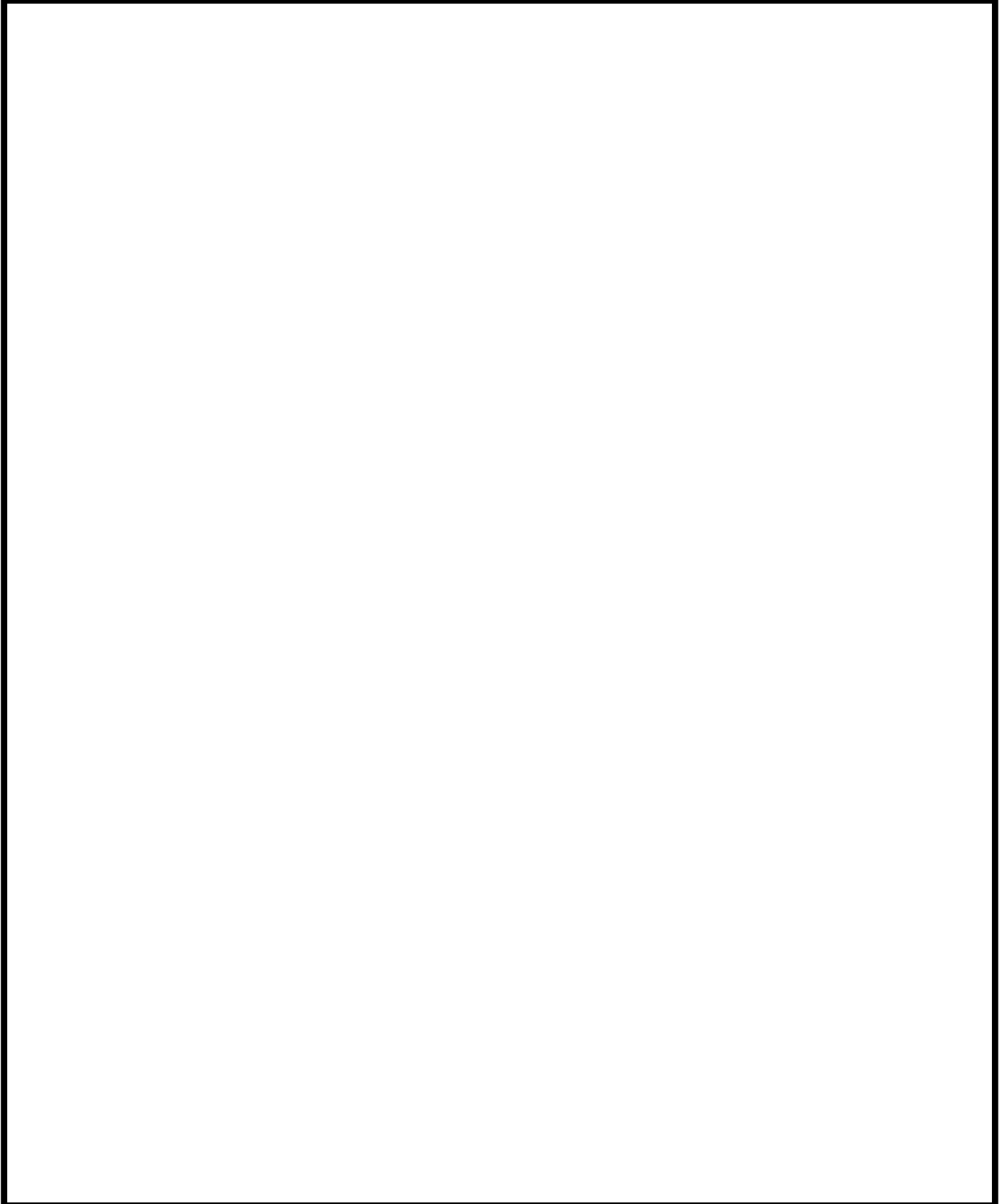
What is the smallest perimeter you can make?

The venue needs to maximise on wall space to ensure the most art can be put on display.

What is the longest perimeter you can make?


*Year 5-6 Copy Masters: Measurement.***Task 4**

Mereana is making a tivaevae ta'orei for her Aunty. She needs to measure the bed so that she can get the right amount of fabric. Here is the outline of a scaled model of the bed for the tivaevae ta'orei.



*Year 5-6 Copy Masters: Measurement.*

For the material, she would pay \$25 for 100 of the smaller patches and \$45 for 100 of the larger patches.

How much would she pay for each option?

Smaller patches


Larger patches


*Year 5-6 Copy Masters: Measurement.*

### **Task 4 (independent)**

Mereana made some patterns with the smaller squares for the tivaevae ta'orei.

With the squares you can make a pattern for the tivaevae.

Make a pattern that has an area of 30 squares by connecting the square tiles.

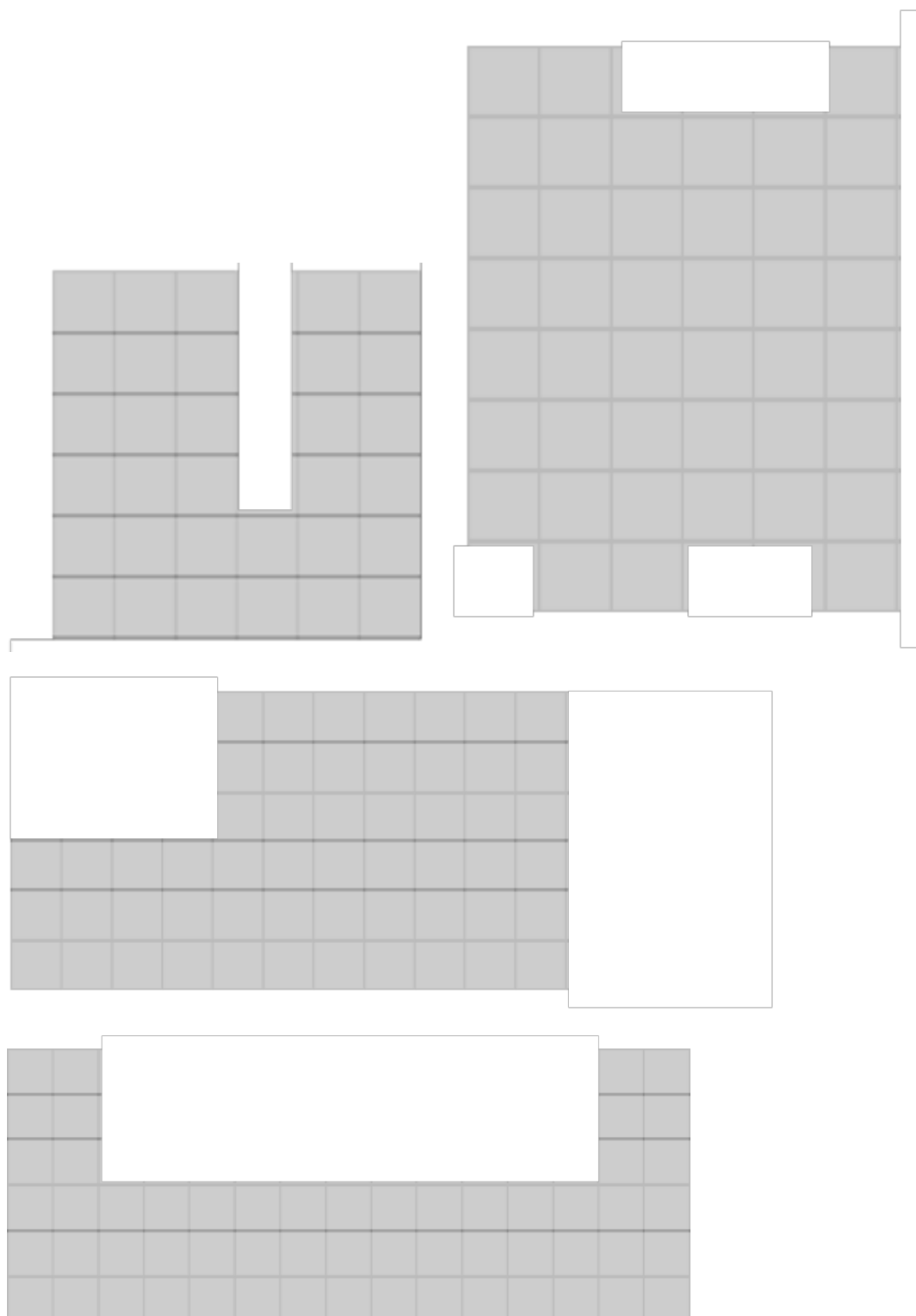
Make a different pattern that also has an area of 30 squares by connecting the square tiles.

*Year 5-6 Copy Masters: Measurement.***Task 5**

Here are the footprint for new buildings for a school.

Each square represents 1 m<sup>2</sup>.

Find the area and perimeter for each footprint.



*Year 5-6 Copy Masters: Measurement.*

**Task 5 (independent)**

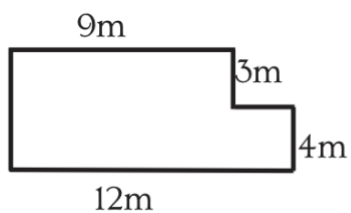
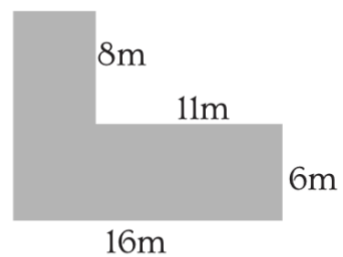
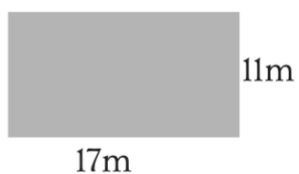
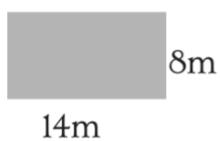
Draw a shape for which the perimeter equals twice the number of the area.

Draw a shape for which the area equals twice the number of the perimeter.

Draw some shapes which have the same area but different perimeters.

**Task 6**

Find the area and perimeter of these building designs.



**Task 6 (independent tasks)**

Draw and label these shapes then calculate the area and perimeter for these buildings:

Building A (Rectangle)

- Length = 18 m
- Width = 10 m

This shape is made from two rectangles:

- Bottom rectangle: 14 m  $\times$  4 m
- Left vertical rectangle: 5 m  $\times$  8 m
- The total height is 8 m
- The total bottom length is 14 m

Building D (Step shape)

- Bottom width = 12 m
- Right vertical side = 7 m
- Top right horizontal = 5 m
- Middle vertical = 3 m
- Top left horizontal = 7m
- Left vertical side = 10 m

(All edges are horizontal or vertical.)

*Year 5-6 Copy Masters: Measurement.***Task 7**

Use the 60 cubes to build as many different box-shaped (cuboid) buildings as possible.

Draw each building as a 3-D representation and label this to show how you find the volume.

*Year 5-6 Copy Masters: Measurement.*

**Task 7 (independent)**

Use  $36 \times 1 \text{ cm}^3$  cubes to build different cuboid.

Draw each building as a 3-D representation and label this to show how you find the volume.

**Task 8**

Here are two towers of starburst lollies. You can choose to keep one of them. Which one would you choose to keep?

Represent your solution in a variety of ways and be prepared to justify your reasoning.

**Task 8 (independent)**

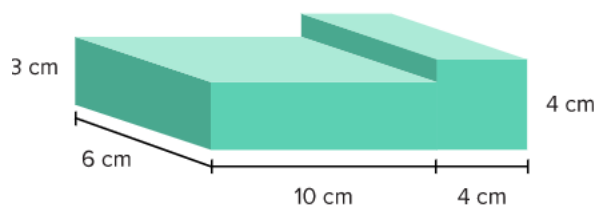
What cuboids can you build with these dimensions?

What would be the volume for the cuboid?

- Length is 7 cubes; width is 2 cubes; height is 1 cubes?
- Length is 6 cubes; width is 5 cubes; height is 4 cubes?
- Length is 3 cubes; width is 3 cubes; height is 3 cubes?
- Length is 9 cubes; width is 5 cubes; height is 3 cubes?
- Length is 7 cubes; width is 8 cubes; height is 9 cube?
- Length is 7 cubes; width is 3 cubes; height is 3 cubes?

**Task 9**

The figure below is made of 2 rectangular prisms. What is the volume of the figure?



Be ready to explain and justify your reasoning.

**Task 9 (independent)**

Here is the volume of some blocks of wood.

Draw the outline of the block of wood and mark the dimensions in cm which could match the volume.

There may be more than one solution so make sure that you have all possible solutions.

- 60 cm<sup>3</sup>
- 12 cm<sup>3</sup>
- 99 cm<sup>3</sup>
- 45 cm<sup>3</sup>
- 13 cm<sup>3</sup>
- 150 cm<sup>3</sup>

**Task 10**

Find two containers that have the same capacity, will hold more than a half a litre but are a different shape.

Prove that they have the same or almost the same capacity. Record the capacity of each container using mL and l.

Make sure that you explain and justify your reasoning using a range of representations including a number-line.

**Task 10 (independent task)**

Identify the attribute being measured:

- The amount of water in a drink bottle
- The amount of air inside a balloon
- The amount of matter that makes up a bicycle
- The amount of petrol in a car's fuel tank
- The amount of space inside a classroom
- The amount of matter that makes up a loaf of bread
- The amount of soup in a bowl
- The amount of space inside a refrigerator
- The amount of matter that makes up a mountain
- The amount of juice in a juice box
- The amount of space inside a suitcase

**Task 11**

Find three things which would have a total mass of 1.75 kilograms.

Draw a number line to represent the mass measure of each item and show how altogether their estimated mass is 1.75 kilograms.

Now use the scales to check the mass of each object against your estimation.

Draw another number line to represent the mass measure of each item from the scale and show the individual and combined mass.

How close to 1.75 kilograms was your estimation?

*Year 5-6 Copy Masters: Measurement.***Task 11 (independent)**

These measurements have got all in a jumble. Sort them so they match correctly.

Area of a football field	300	m <sup>2</sup>
Capacity of a bath	60	tonnes
Height of a 3 year old	5	metre
Length of a finger	-20	litres
Mass of a ship	45	mm/second
Walking Speed	3.5	km
Temperature of a glacier	7000	degrees celsius
Snails speed	26000000	mm
Temperature of human body	1	km/h
Length of a marathon	37	degrees celsius

**Task 12**

This weekend our church had a special children's celebration for White Sunday. TJ and his friends had to mix the orange juice for lunch. He had two recipes for mixing the orange juice. They were told to make the one with the most orange taste because most children preferred that.

Recipe 1: Mix 2 l orange to 3 l water

Recipe 2: Mix 3 l orange to 5 l water

Which recipe did they use?