RICH MATHEMATICAL TASK BOOKLET

MEASUREMENT

YEAR 3

Copy Masters

Task 1

Once upon a time, there was a brilliant Ariki in the Cook Islands. She loved measuring things and used parts of her body like her finger, hand, foot, and arm as measurement units.

She decided that every length measurement on the island should be done with her measurement units. However, she couldn't go everywhere to measure everything! How could she solve this problem? Use the card and design a measurement tool that would help her.

Use your measurement tool and measure each length using two different measurement units. Complete the table and make sure you write the measurement unit and measurement count.

	First measurement	Second measurement
Doorway (across)		
Book		
Table		

Task 1 - Independent Tasks

Litea wants to go on a long bike ride

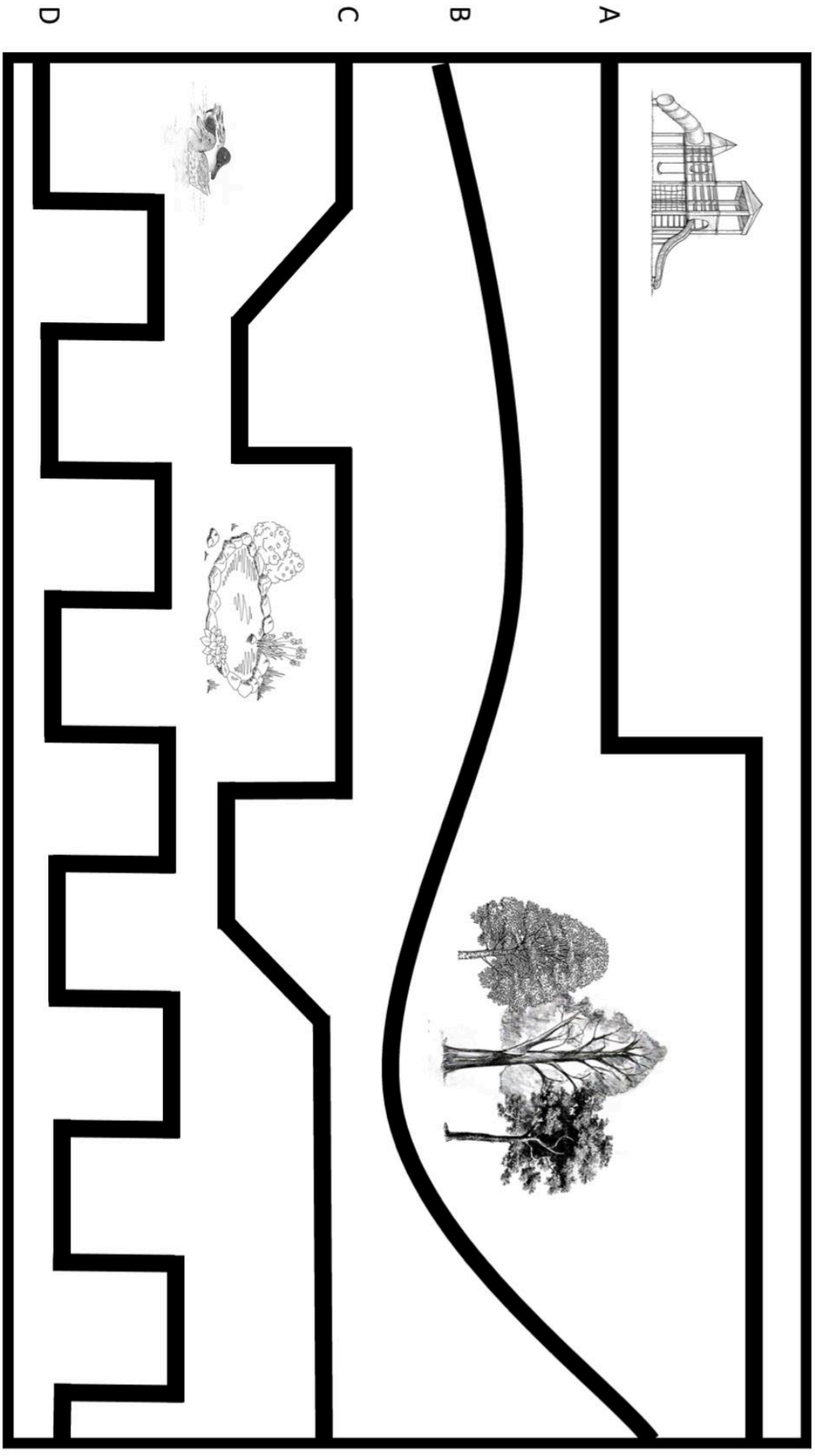
Can you use the equipment to measure which path in the park is the longest or are they all the same?

Record your measurement unit and measurement count.

Choose a different set of equipment to measure the paths.

Record your measurement unit and measurement count.

What do you notice about the measurement count when you use a different measurement unit?


D
C
B
A

Task 2

1) Make a ruler using one cube and the card strip.

2) Look at your card strip ruler and a ruler.

What do you notice? What is the same? What is different?

3) Draw another card strip ruler which you have improved

Task 2 - Independent Tasks

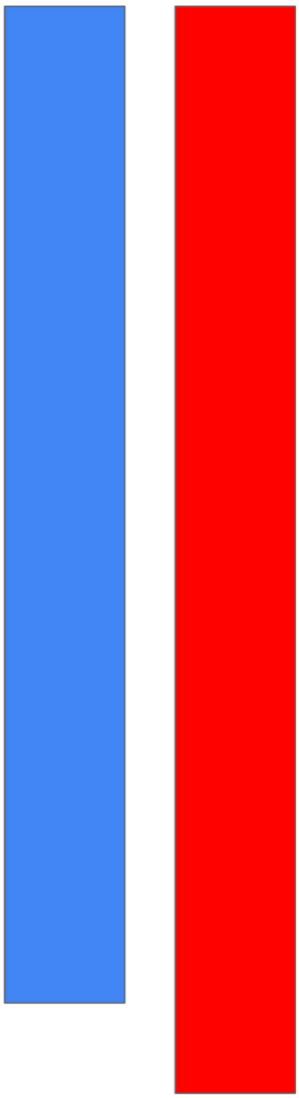
The Ariki decided she wanted a new sleeping mat. She wants the mat to measure six feet long and three feet wide.

The red strip is the same size as her foot measurement unit.

Her helper has lost the foot measurement unit and decides to use their own foot. The blue strip is the same size as the helper's foot.

Use each strip to make the bed for the Ariki.

Task 2 – Independent Task



Task 3

Estimate how long the _____ is in metres.
Estimate -
Use the metre strip to measure the length and record the measurement count and measurement unit.
Measurement -

Find some objects in the classroom that are one centimetre in length.

How long is your metre strip in centimetres?

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Measurement -

Find some objects in the classroom that are one centimetre in length.

How long is your metre strip in centimetres?

Task 3 - Independent Tasks

Estimate the length of each object in centimetres. Check your estimation with your centimetre strip. Make sure you record the measurement unit.

Estimate –
Measurement –

Estimate –
Measurement –

Estimate –
Measurement –

Estimate –
Measurement –

Task 4

Hamuera wants to post his friend who lives overseas a book for their birthday. Measure to find out whether the book will fit in the envelope.

Estimate the length of each side of the book first in centimetres.

Estimate –
Perimeter –
Use your ruler to find the perimeter of the book. Record the measurement for each side in centimetres.
Measurement –
Perimeter –

Estimate the length of each side of the envelope first in centimetres.
Estimate –
Perimeter –
Use your ruler to find the perimeter of the envelope. Record the measurement for each side in centimetres.
Measurement –
Perimeter –

Task 4 - Independent Tasks

Haumea wants to post his friends who lives overseas a book for their birthdays. Measure to find out whether each book will fit in the envelope.

Estimate the length of each side of the book first in centimetres.
Estimate –
Perimeter –

Use your ruler to find the perimeter of the book. Record the measurement for each side in centimetres.
Measurement –
Perimeter –

Estimate the length of each side of the envelope first in centimetres.
Estimate –
Perimeter –

Use your ruler to find the perimeter of the envelope. Record the measurement for each side in centimetres.
Measurement –
Perimeter –

Task 5

Marama is making tivaevae pillowcases for her pillows. She needs to measure the area of the pillow so that she can get the right amount of fabric.
How large is the pillow?
Use one square to find the area of the pillow.
Is the second pillow larger? Find the area and check.

Task 5 - Independent Tasks

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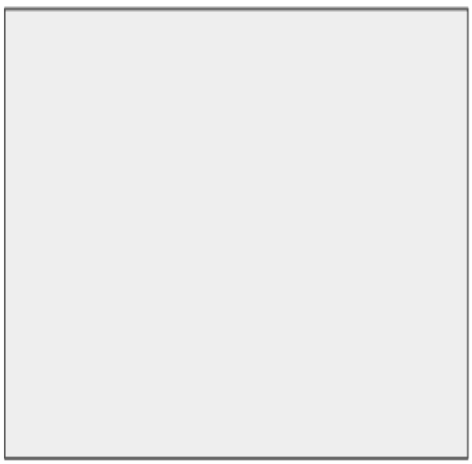
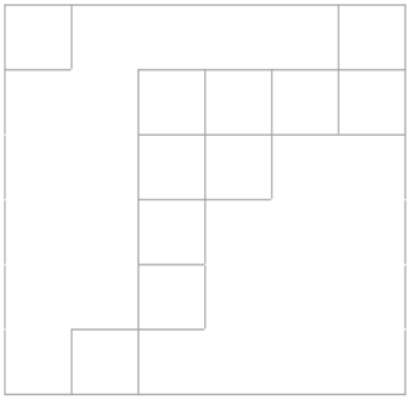
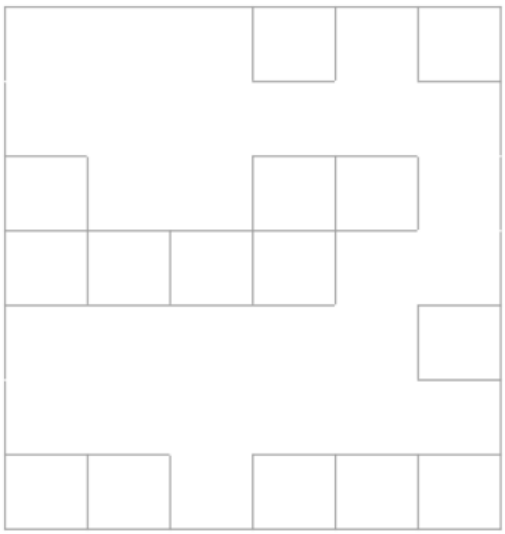
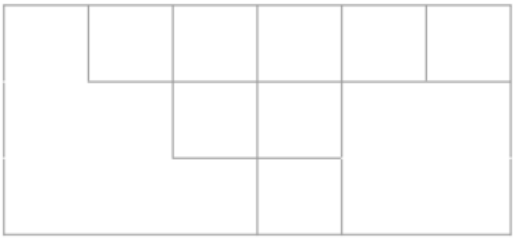


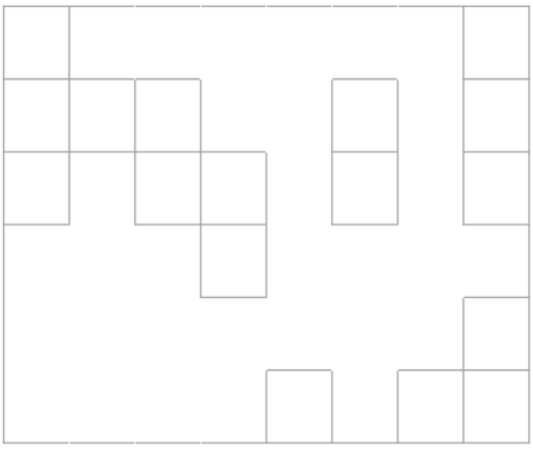
Task 6

I asked the other teachers to help me find the area of these rectangles. They must have got distracted and they didn't finish.
Can you help by drawing the missing lines and finding the area of these rectangles?



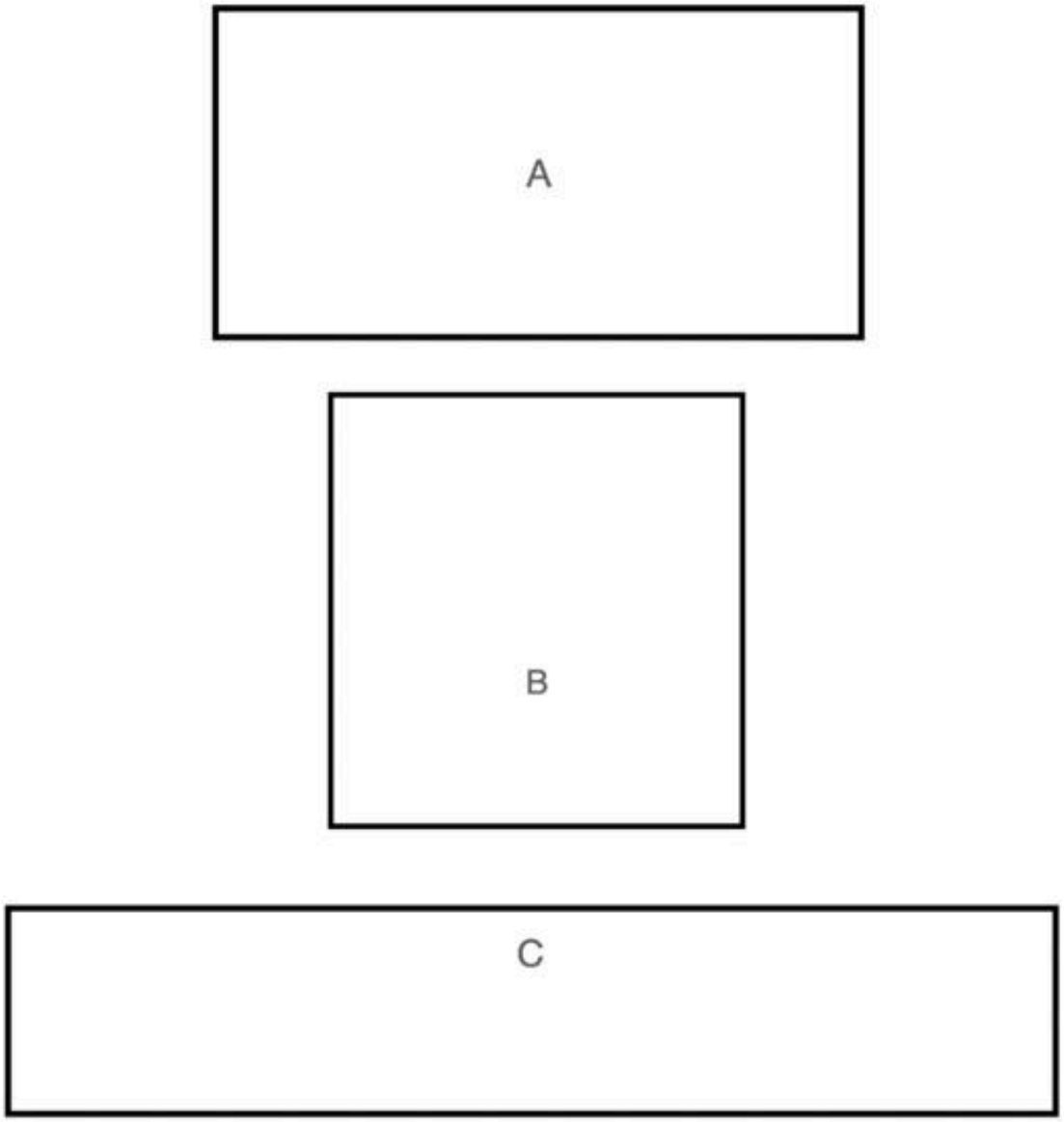






Task 6 - Independent Tasks

Timo is choosing a fish tank for his fish. He wants to choose the fish tank with the biggest area. Each shape is the area of the bottom of the tank.



Estimate the area for each tank. Record your estimate. Measure the tank using the square measure. Record the measurement count.

Which tank should Timo choose?

Task 7

Look at the net of the box and estimate how many cubes you will need to fill the box.

Check your estimate by making the box and filling it with 1 cm^3 cubes.

Draw a representation which shows the volume of the box

Task 7 - Independent Tasks

What box has the most volume?

What box has the least volume?

Which boxes have the same volume?

Represent how you found the volume for each box and label which one has the most volume, the least volume, and same volume

Task 8

Matiu and Linea have a carton of juice the same size. Matiu measures the volume of the carton of juice using cubic centimetres. Linea measures the capacity of her carton using water and millilitres. They compare their results and are surprised.

With your carton use the two units of measure to find out what surprised them.

Make sure you explain and justify your answer using representations.

Task 8 - Independent Tasks

Use the 24 cubes to design some box shaped buildings.

Draw a representation of your design and write the volume for each one.

Task 9

Find the containers that have the same capacity but are a different shape.

Prove that they have the same or almost the same capacity.

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

Task 9 - Independent Tasks

Estimate how many millilitres would fit in each container. Write your estimate down.

Use one of the measuring jugs to compare how much liquid in millilitres the container would hold.

Make a number line which shows the scale for each container.

Task 10

Find the mass of each bag of objects.

Record the mass in grams and represent this on a number-line.

Find the difference in grams between for the bags of objects and put them in order from most massive to least massive.

Task 10 - Independent Tasks

Find the difference in mass between each pair of measures. Represent your solution on an empty number-line.

19 grams and 67 grams
26 grams and 75 grams
183 grams and 57 grams
43 grams and 118 grams
312 grams and 99 grams
708 grams and 409 grams
687 grams and 1 kilogram
1 kilogram and 446 grams

Task 11

Find three things which would have a total mass of one kilogram.

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

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 one kilogram was your estimation?

Task 11 - Independent Tasks

Choose a group of objects that you predict will have a total mass of:

50 grams
175 grams
500 grams
1 kg
2 kg

Use the scales to check the mass of the group. Draw a number line and represent the mass measure of each item in the group and show the total mass.

How close were you to the total mass you were trying to make?

Task 12

Maia and her sister Quantum have each picked a bucket of strawberries. The strawberries in Quantum's bucket are bigger than Maia's and she says that her bucket is more massive than Maia. They both measure the mass of their buckets.

Maia's box is 1 kg and 373 g and Quantum's box is 1 kg and 294 g.

Which box is more massive?
How many grams would you need to add to make the boxes the same mass?
Represent your solution using a number-line.