Book 6 - Ages 10/11

Measurement in Mathematics Series

Practical measuring activities for the classroom.

Contents

Measure to the nearest mL and L

❏ What you need: a graduated mL jar and a litre jar, 10 assorted containers, e.g. milk carton, jam jar, etc.

❏ Your task:

How many mL are in a litre? I'm glad you asked. There are 1000 mL in one litre.

1. Using your **litre container**, fill each of your 10 containers with water one at a time. Some will use more than 1 litre, some will use less than one litre. Estimate the volume, in litres, of **6** of the containers.

Item	Estimate in L
1.	
2.	
3.	
4.	
5.	
6.	

2. Now repeat Activity 1 using the graduated mL jar.

Item	Estimate in mL
1.	
2.	
3.	
4.	
5.	
6.	

See if you can find an easy and accurate way of actually measuring the volume of the remaining four containers.
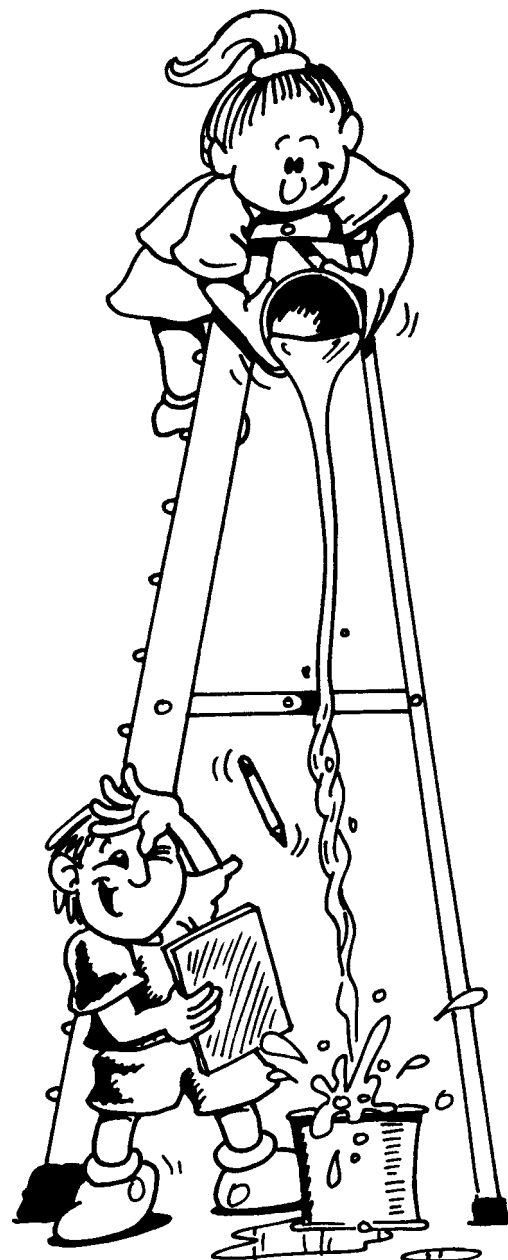
Name: ....

Do polygons like rulers?

❑ Your task: Measure the perimeters of the polygons below using both millimetres and centimetres. When measuring in cms, go to the nearest whole number.

a

b

c

d

e

f
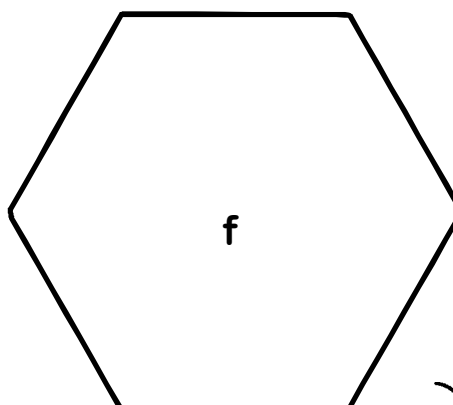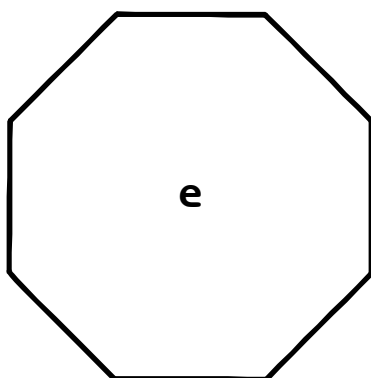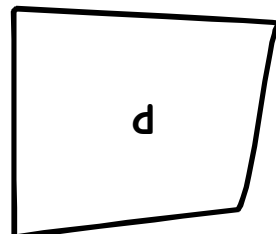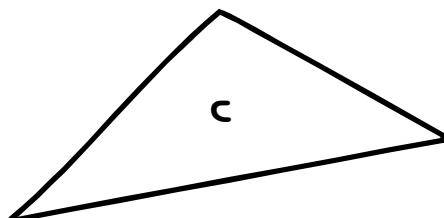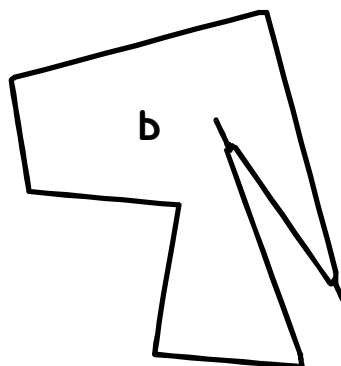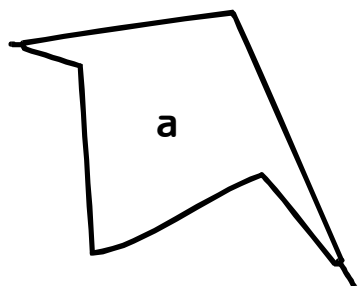
Shape	mm	cm
a.		
b.		
c.		
d.		
e.		
f.		

❑ Now draw 5 shapes of your own and measure the perimeter in mm and cm.

Tessellations to try

Tessellations can be made by cutting a piece off one side of a shape and adding it to another side. Thus, you can change the shape completely. An artist named Escher was famous for these types of drawings.

Here is an example with a square.

Here is one with a triangle.

❑ Now try some for yourself. You can choose either:
  2 rectangle shapes, or
  2 triangle shapes, or
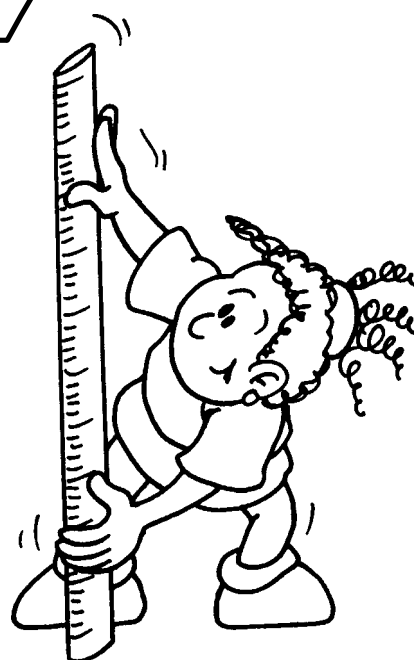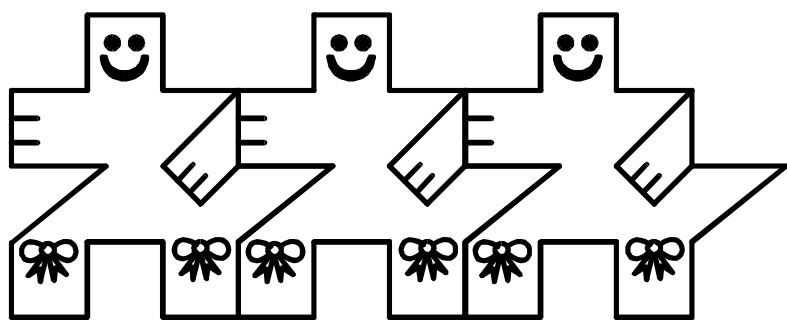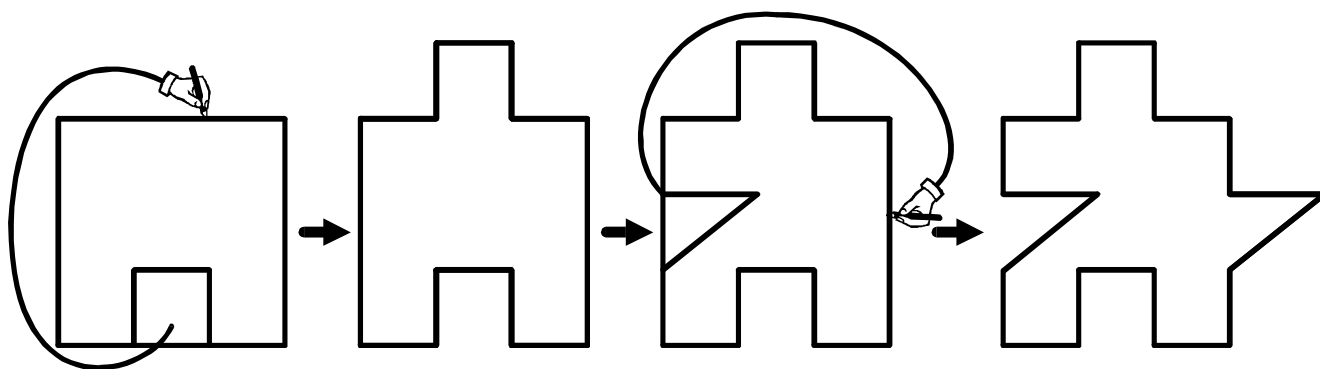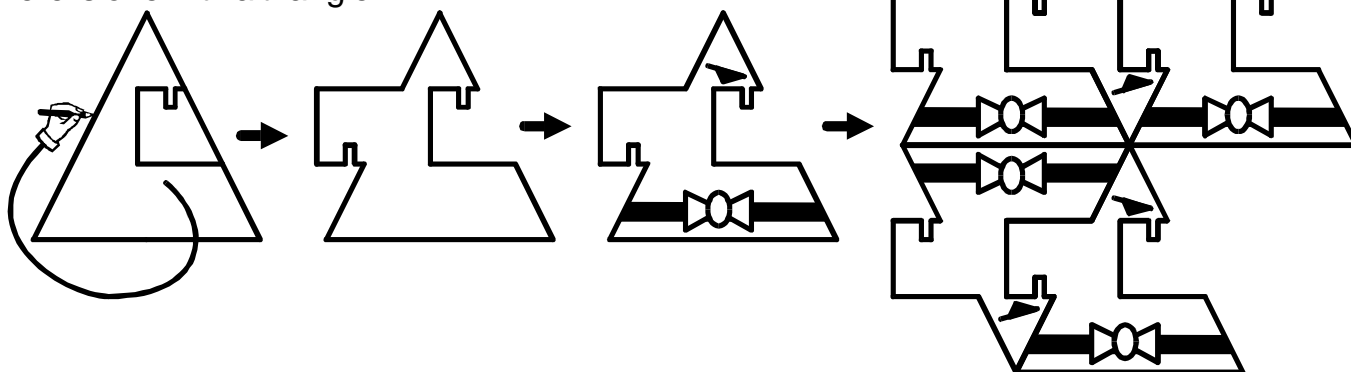 1 rectangle, 1 triangle shape.

Can a circle tessellate? Find out if it can or not. If not, why not?

. . . .

. . . .

. . . .

Name: ....
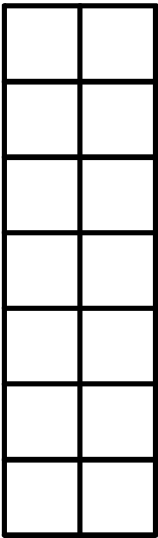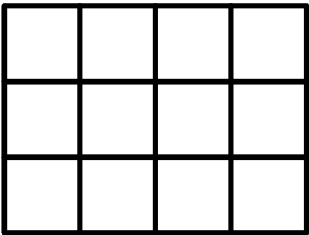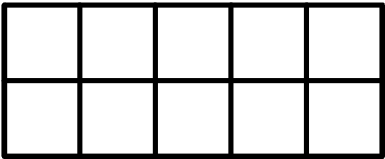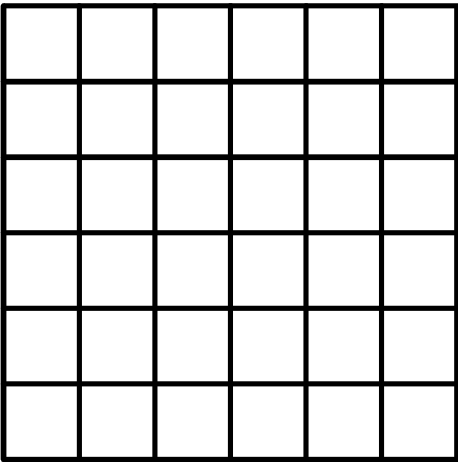
Not area again!
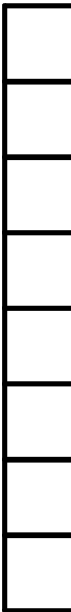
1. Your task: Count out the number of squares in each figure below.

a.

b.

Answer ....

c.

Answer ....

Answer ....

d.

Answer ....
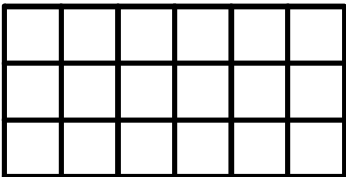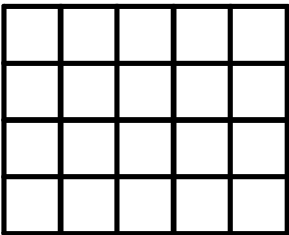
Answer ....

e.
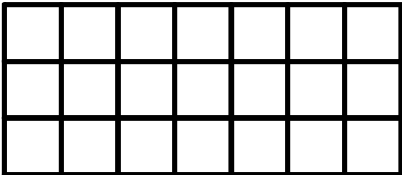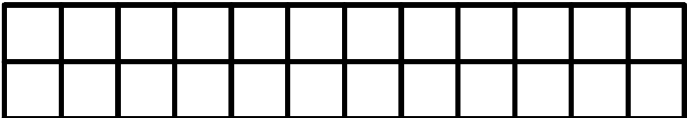
2. Try these! Count the number of rows of squares and the number of columns of squares, then count the total number of squares.

a.

rows ....

columns ....

total number ....
(area)

rows ....

columns ....

total number ....
(area)

b.

rows ....

columns ....

total number ....
(area)

c.

d.

rows ....

columns ....

total number ....
(area)

e.

rows ....

columns ....

total number ....
(area)

rows ....

columns ....

total number ....
(area)

3. What is an easier way to work out the area of a rectangle? ....

4. Write down your rule, and check to see if it always works. ....

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Measuring the volume of solids

❏ What you need: a large container of water, a graduated jug, a tray with sides to it, string, 10 solid items.

Remember that 1 litre of water is equal to 1000 cm^3
and 1 mL of water is equal to 1 cm^3.

❏ Your task:

Fill the container with water to the very top. Tie a piece of string around one of your objects and lower it to the bottom of the container. Water will spill out. Now take the object out and, using the graduated jug, see how much water is needed to fill the container again. The amount of water an object **displaces** (pushes over the side of the jug) is equal to the volume of the object.
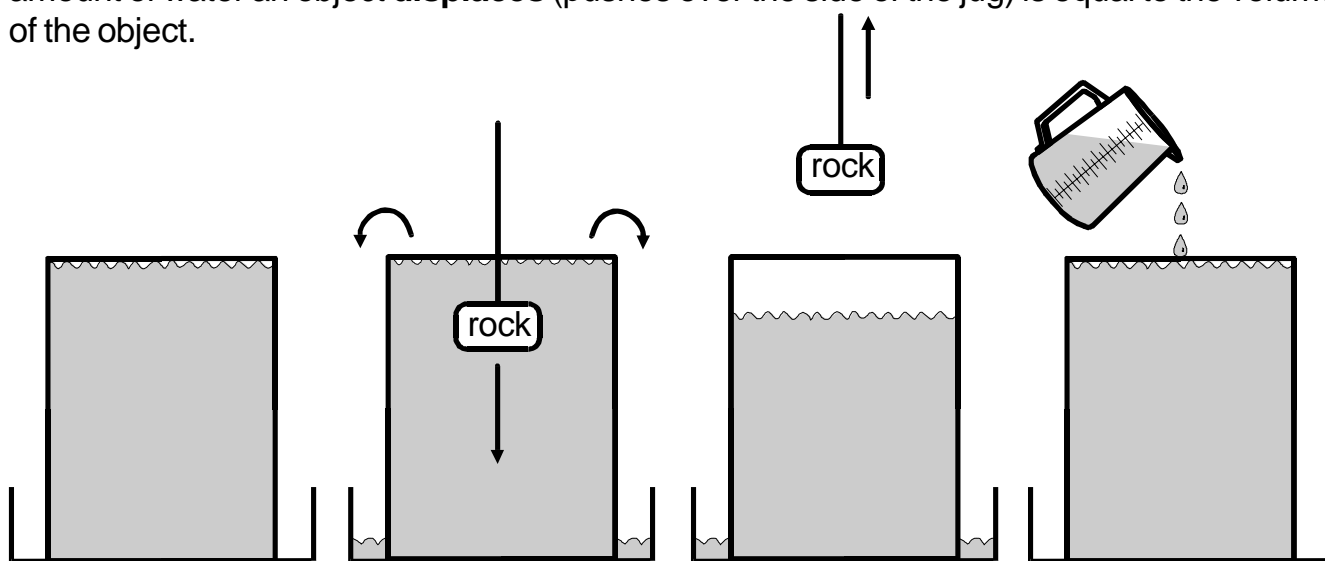
Repeat the steps for each item and fill in the table below.
(Hint: If an object floats, you may need to push it under the water.)

Item	Volume	Rank
1. e.g. rock	400 mL	
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

When you have finished the table, rank the items in order from the greatest volume to the least.