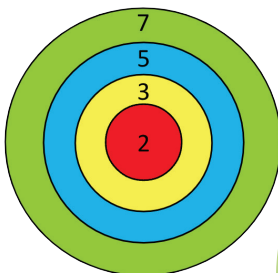# Y4 Learning at home activity sheet #5

Problem 1:

How can you get a score of 12 on this board by throwing three darts?

Are there any scores you can not get with three darts?

Problem 2:

Apikalia brushes her teeth three times every day.

A new toothbrush lasts for ten weeks.

How many brushings does Apikalia get out of a toothbrush before she buys a new one?

Problem 3:

You have three jars and 30 marbles.

Put marbles into the jars until:
- All 30 marbles are used
- The middle jar has one more marble than the left jar.
- The right jar has one more marble than the middle jar.
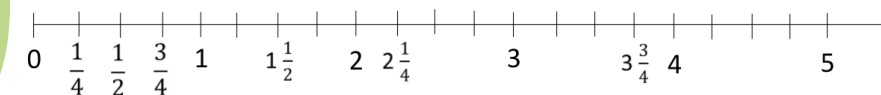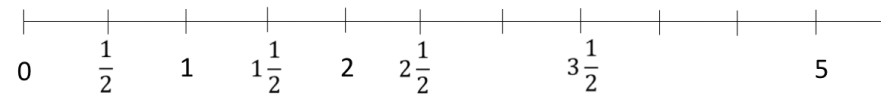
How many marbles are in each jar?

Tens and fives:

Here are the five times and ten times tables written side by side. Some numbers are left out. Fill in those numbers.

Ten times tables		Five times tables
1 x 10 = 10		2 x 5 = 10
2 x 10 = 20		4 x 5 = 20
3 x 10 = 30		6 x 5 = [ ]
[ ] x 10 = 40		8 x 5 = 40
5 x 10 = 50		[ ] x 5 = 50
6 x 10 = [ ]		12 x 5 = [ ]
[ ] x 10 = 70		[ ] x 5 = 70
8 x 10 = [ ]		[ ] x 5 = 80
[ ] x 10 = 90		18 x 5 = [ ]
10 x 10 = [ ]		20 x 5 = [ ]

Placing numbers:

Write the missing numbers on these number lines.

$0 \quad \frac{1}{2} \quad 1 \quad 1\frac{1}{2} \quad 2 \quad 2\frac{1}{2} \quad 3\frac{1}{2} \quad 5$

$0 \quad \frac{1}{4} \quad \frac{1}{2} \quad \frac{3}{4} \quad 1 \quad 1\frac{1}{2} \quad 2 \quad 2\frac{1}{4} \quad 3 \quad 3\frac{3}{4} \quad 4 \quad 5$

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Y4 Learning at home activity sheet #5

How many quadrilaterals?

A quadrilateral is a four-sided shape.
Draw as many different quadrilaterals as you can on these grids.
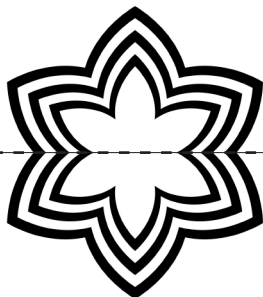All corners must be at a dot. An example is drawn for you.
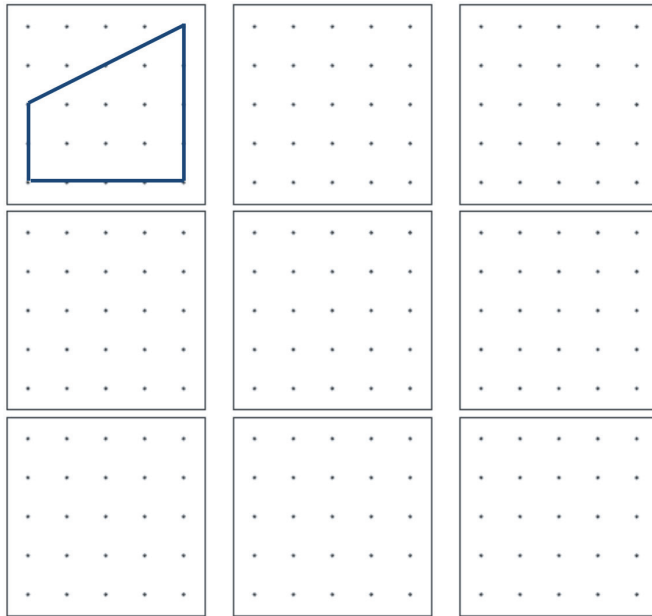
Lines of reflection:

The dotted line is a line of symmetry.

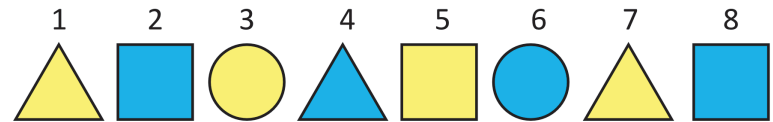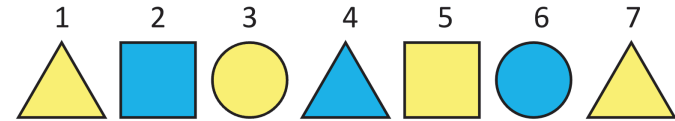It is a place to put a mirror so the whole shape is still seen.

Draw three other lines of symmetry for this figure.

Pattern finding:

What is the 8th shape in this pattern? How do you know?
What is the 18th shape in this pattern? How do you know?

1 2 3 4 5 6 7

1 2 3 4 5 6 7 8

Lines of reflection:

Get a collection of five different sized plates from your kitchen.

Put the plates in order of size. The flat space is called area.
Draw the plates on this continuum.

Least area   Greatest area

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Learning at home: Notes for whānau

When your child finishes each activity, ask them to add a mouth to the face to show how they felt about that activity.

Problem 1:

Check that your child understands the problem. You might provide an example of where three darts can land. In the case on the right the total is 2 + 5 + 7 = 14.

Changing the 5 for 3 gives 2 + 3 + 7 = 12 which is the answer to the first question.
Your child might begin by making many totals which is excellent addition practice.
Encourage them to be strategic about the totals that cannot be achieved.

- Is zero possible? (All three darts might miss)
- Is one possible? (No)
- Is 22 possible? (No, since the highest total with three darts is 3 x 7 = 21)

The totals that are not possible are 1, 18, 20, and any whole number more than 21.

Problem 2:

Ask, "How many brushing does Apikalia give her teeth in one week?" Your child might think additively (3 + 3 + 3 + 3 + 3 + 3 + 3 = ?). If your child knows 7 x 3 = 21 that is even better. They could use a calculator if they do not know the fact.

Ask, "If Apikalia gives her teeth 21 brushings each week, how many brushings will the brush last for?"

Your child may know that 10 x 21 is the same as "21 tens" and tell you the answer, 210. That shows good place value understanding. Alternatively discuss how the calculator might help to find 21 + 21 + 21 + ... + 21. 10 x 21 = 210 gives the answer.

Problem 3:

It easy to model the problem physically using jars from the kitchen and any small objects to represent the marbles. Let your child attempt the problem on their own. Do they understand the problem? That will show in counting out 30 marbles then allocating the marbles among the three jars.

Your child might approach the problem randomly, hoping to get numbers that work by trial and error. Ask, "Will the numbers of marble in the jars be close together or far apart? How do you know?" Your child should recognise that the numbers will be close together. A nice strategy is to share the marbles, 10, 10, 10, in each jar. By moving one marble from the left to the right jar the solution, 9, 10, 11, is found.

Tens and fives:

This task is aimed at supporting your child to connect the ten times and five times tables. Since each ten contains two fives, doubling and halving patterns occur with multiplications that have the same answer. For example, four tens must contain eight fives. This relationship shows as 4 x 10 = 40 so 8 x 5 = 40.

| Ten times tables		Five times tables
1 x 10 = 10		2 x 5 = 10
2 x 10 = 20		4 x 5 = 20
3 x 10 = 30		6 x 5 = 35
4 x 10 = 40		8 x 5 = 40
5 x 10 = 50		10 x 5 = 50
6 x 10 = 60		12 x 5 = 60
7 x 10 = 70		14 x 5 = 70
8 x 10 = 80		16 x 5 = 80
9 x 10 = 90		18 x 5 = 90
10 x 10 = 100		20 x 5 = 100

Placing numbers:

The important idea is that number lines can be used to represent fractions as well as whole numbers. The first line counts in halves and the second line counts in quarters.
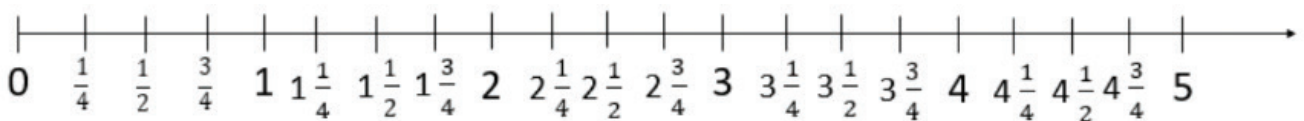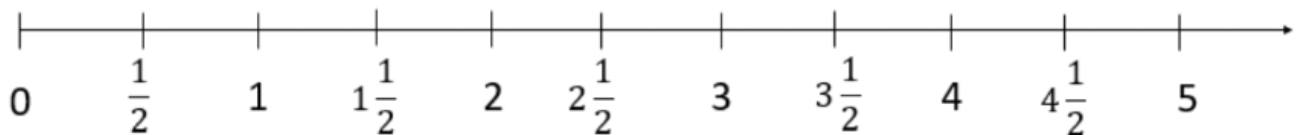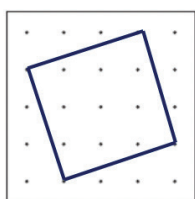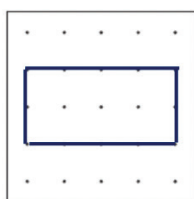

How many quadrilaterals?

There are many different quadrilaterals that might be drawn. Here are some examples with their mathematical names:
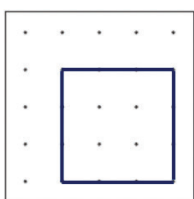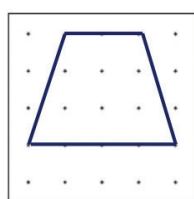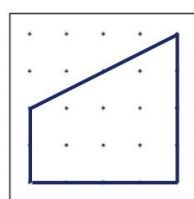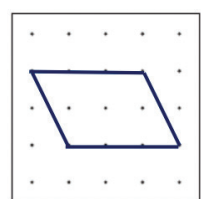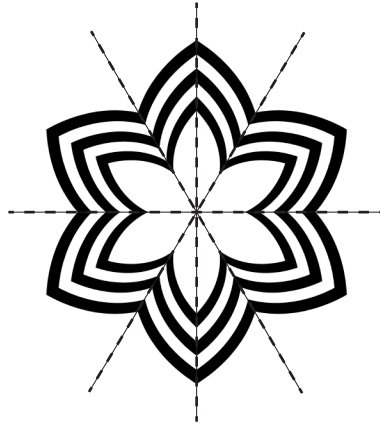

Square   Also a square   Rectangle   Trapezium   Also a trapezium   Parallelogram

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Lines of reflection:

If you have a small make-up mirror, using that may support your child to find all the lines of symmetry. They can place the mirror in different places to see what works. In total the figure has six lines of symmetry.

Ordering by area:

This task encourages your child to attend to area, the amount of flat space taken up by a figure. Most plates are circular so the exercise of ordering the plates can be done by eye.

Challenge your child further, if possible, by comparing plates of different shapes. For example, compare a circle with a square. Which plate has the most area? How could they measure the areas of the plates?
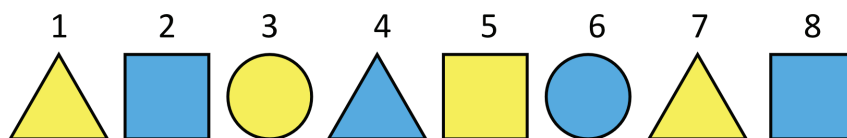
Pattern finding:

Does your child notice that there is a different pattern for the shapes and the colours?

The shapes repeat: triangle, square, circle, triangle, square, circle,...

The colours repeat yellow, blue, yellow, blue, ...

Saying the words for the sequences can help your child make predictions. Continuing the pattern works for finding the 8th shape.

Finding the 18th shape might encourage your child to look for the chunk (element of repeat). In this pattern the element of repeat is:

Other reasoning might be used. Every second shape is blue. All the even numbered shapes are blue, so the 18th shape is blue. Every third shape is a circle, so the shapes 3, 6, 9, 12, 15 and 18 are circles. So the 18th shape is a blue circle.

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