



# Year 6: Spring term 2

## Topics studied this half term:

- Ratio
- Properties of shape
- Statistics

## Within ratio, your children will be learning to:

- Use ratio language
- Use ratio and fractions
- Use the ratio symbol
- Calculate ratio
- Use scale factors
- Calculate scale factors
- Solve ratio and proportion problems

## Within properties of shape, your children will be learning to:

- Measure with a protractor
- Calculate angles
- Calculate vertically opposite angles
- Calculate angles in a triangle
- Calculate angles in a triangle – special cases
- Calculating angles in special quadrilaterals
- Calculating angles in regular polygons
- Draw shapes accurately
- Draw nets of 3D shapes

## Within statistics, your children will be learning to:

- Read and interpret line graphs
- Draw line graphs
- Use line graphs to solve problems
- Identify parts of a circle
- Read and interpret pie charts
- Use pie charts with percentages
- Draw pie charts
- Calculate the mean

## Tips for good homework habits:

Take a break before your child gets bored or overwhelmed.

## Ratio and proportion

### HERE'S THE MATHS

Your child is learning to understand and use ratio to solve problems. For example, if 7 apples cost £3.50, what will 4 apples cost? First, work out the cost of one apple using division  $£3.50 \div 7 = £0.50$ , then multiply by the number of apples required:  $£0.50 \times 4 = £2.00$ .

### ACTIVITY

1	2	3	4	5	6
£3.20	£4.88	£4.00	£5.68	£7.20	£8.00
7	8	9	10	11	12
£16.32	£2.48	£8.56	£6.40	£8.88	£9.60

### What to do

- First person tosses the coin to decide if the amount represents 4 items or 8 items.
- Turn over a card to decide the cost of items.
- Calculate the cost of a single item.
- Turn over a second card to decide how many items you would like to buy.
- Calculate the cost.
- Second person checks (using a calculator if they like).
- Swap roles.
- Continue for 10 minutes.

### Variation

- Introduce a target spend of £20. The first person to spend £20 is the winner.

### You will need:

- 2–12 digit cards from a pack of playing cards with the aces and Kings removed (Jack represents 11 and Queen 12)
- coin – heads is 4 items and tails is 8 items
- calculator (or use mobile phone)

### QUESTIONS TO ASK

The ratio of pink, purple and white coloured beads in a necklace is: 1: 2: 3. How many purple beads will there be if there are: 60 white ones? 5 pink ones? 120 beads in total?

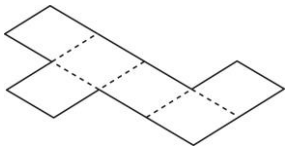
The ratio of ham, cheese and tuna sandwiches is: 5: 2: 3. How many cheese sandwiches if there are: 12 tuna ones? 100 sandwiches in total? 25 ham ones?

# Properties of shapes

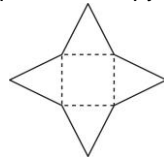
## HERE'S THE MATHS

Your child is learning to recognise, describe and build simple 3-D shapes, including making nets. A net is a 2-D pattern of faces that you can cut and fold to make a model of a solid shape. Small tabs are often added in order to glue the shapes together.

cuboid



square-based pyramid



## ACTIVITY

### What to do

- Set the timer to 5 minutes.
- Each person draws as many different nets for a cube as possible.
- When the time is up, swap papers and check each other's nets.
- The winner is the person with the greater number of correct nets.
- If you cannot be certain of a particular net, cut it out and try it! There are 11 different nets in total.

### You will need:

- 2 small square shapes to use to draw around, e.g. block of square sticky notes
- pencil and paper
- timer (or phone with timer)

### Variation

- Draw two different nets for a cube. Put dice dots on the faces so that opposite sides add up to seven as on a real dice. Cut and fold the nets to check they are correct.

## QUESTIONS TO ASK

Can you explain the meaning of 'net'?

Which 3-D shape has a net with two triangular and three rectangular faces? (*triangular prism*)

Describe the net of a square-based pyramid. (*4 triangles joined by a side to a central square*)

The net of a 3-D shape is made up of six 2-D shapes. What could it be? (*cube, cuboid, pentagonal pyramid*)

Which 3-D shapes have nets composed of triangles only? (*tetrahedron, octahedron, icosahedron*)

# Statistics

## HERE'S THE MATHS

Your child is learning to find the mean of a set of numbers from data. To calculate the mean, first find the total and then divide by how many values there are in the data set, e.g. the mean netball score of a team scoring 4 goals, 9 goals and 8 goals is 7 goals ( $\frac{21}{3} = 7$ ). When talking about goal average or average temperature, this is actually describing the mathematical mean.

## ACTIVITY

### What to do

- Turn over a card to give a tens digit.
- Toss the coin – heads means zero in the ones column, tails means five, so an 8 and heads would give 80.
- Repeat this 4 more times.
- Look at the five 2-digit numbers and both estimate the mean.
- Calculate the actual mean of the numbers.
- Score 10 points if you predicted the exact mean, 7 points if you were within  $\pm 2$  of the mean and 5 points if you were within  $\pm 5$  of the mean.
- Play for 10 minutes. The winner has the higher score.

### You will need:

- 1–9 digit cards from a pack of playing cards
- coin
- pencil and paper

### Variation

- Use two cards to give the hundreds and tens digits and the coin as before to decide the ones digit.

## QUESTIONS TO ASK

How do you find the mean of a set of numbers?

What is the mean of 60, 80, 90 and 50? (*70*)

What is the mean of 1.7, 2.3, 1.8 and 2.6? (*2.1*)

The mean of four numbers is 12. Suggest possible values for the numbers.

The mean of three numbers is 2.6. Suggest possible values for the numbers.