Properties of shapes

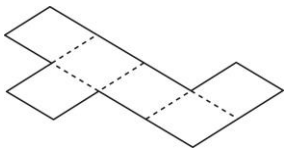**Busy Ant Maths**

Year 6 Maths Newsletter 1
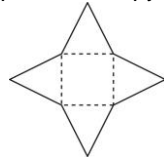
Date: _____   Name: _____

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, octagon, icosahedron*)

MATHS TOPICS

These are the maths topics your child will be working on during the next three weeks:

- Number and place value
- Addition and subtraction
- Properties of shapes

KEY MATHEMATICAL IDEAS

During these three weeks your child will be learning to:

- read, write, order and compare numbers to 10 000 000 and round any number to a required degree of accuracy
- add and subtract mentally, including with large numbers and decimals
- recognise, describe and build simple 3-D shapes, including making nets.

TIPS FOR GOOD HOMEWORK HABITS

Plan a homework timetable and agree a time when your child will do their homework.

Number and place value

Your child is learning to read, write, order and compare numbers to 10 000 000. They are also consolidating their understanding of rounding numbers to a required degree of accuracy. The rule for rounding to the nearest 10 (100, 1000, 10 000 and so on) is that 5 (50, 500, 5000 and so on) or greater is rounded up and 4 or fewer (49, 499, 4999 and so on) is rounded down.

ACTIVITY

What to do
- Each person has a set of 0–9 cards.
- Lay out 7 cards.
- Use the cards to make the largest 7-digit number possible.
- Read your numbers to one another.
- The person with the larger number scores a point.
- Shuffle the cards and repeat.
- The winner is the first person to reach a score of 5.

You will need:
- 2 sets of 0–9 digit cards from a pack of playing cards (use Jacks to represent zero)

Variation
- Play the same game but make the smallest number.

QUESTIONS TO ASK

How is zero used as a placeholder? (*Zeros keep the digits in the correct places.*)

What is the 2 worth in these numbers:
1 256 789? (*two hundred thousand: 200 000*)
1 567 234? (*two hundred: 200*)
1 426 000? (*twenty thousand: 20 000*)

What happens to digits when you divide by 1000? (*The digits move one place to the right.*)

Which digits change when you add 1 to 999 999? Why?
(*All of them, because adding one more to each nine changes the value to 10.*)

Addition and subtraction

Your child is practising mental subtraction, including with large numbers and decimals. Subtracting from a 7-digit number involves a secure understanding of place value. It can be helpful to write the number to be subtracted in the correct position beneath 1 000 000 to 'see' the answer.

ACTIVITY

50	4000	100	200 000	20	15 000
2	18 000	900 000	9000	9	600
2000	300	70	600 000	11 000	400 000
100 000	500 000	4	80	7000	3000
40	6	8000	7	1	700 000
14 000	10 000	16 000	12 000	300 000	90

What to do
- Take turns to choose a number on the grid.
- The first person subtracts their chosen number from 1 000 000.
- Use a number line or jottings if necessary.
- The second person checks the calculation, mentally. If they disagree, use a calculator to check.
- If the answer is correct, cover the number; if it's incorrect, leave it uncovered.
- Swap roles. Each time subtract from a million.
- Play for 10 minutes or until the grid is complete.
- The winner has the greater number of counters.

You will need:
- calculator
- buttons or counters in two colours

Variation
- Include a row of decimal numbers, e.g.

0·6	0·04	0·2	0·9	0·03	0·009

QUESTIONS TO ASK

How many zeros does a million have?

What is four less than four million?

What is 67·5 − 37·8?

What is 246 246 − 570 (5 700, 57 000)?

What has been subtracted from 5 612 345 to leave 4 712 345?