Useful websites

- https://nrich.maths.org – website aimed at provoking mathematical thinking and discussion through problems.

- http://www.mathszone.co.uk - Useful website with hundreds of links to other websites – most resources are for KS2 with some for KS3.

- http://www.supermathsworld.com - Maths games website aimed at mostly KS2 pupils – pupils can log in as a guest or create an account.

- http://www.educationquizzes.com/ks2/ - KS2 revision website – there is a parents as well as a pupil info section – click on the maths link on the left hand side - some resources are free but a login and password need to be set up to access the majority of resources.

- http://www.free-training-tutorial.com/math-games.html - a maths games website (American language) (with some links to typing practice as well) mostly suitable for KS2 pupils with some KS3 suitable games.

- http://www.coolmath4kids.com/ - Maths games website (American language) for pupils with links to lots of other sister websites.

- http://www.woodlands-junior.kent.sch.uk/maths/ - Useful website for KS2 pupils to practice some key skills in maths.

Helping your child with maths in Year 5

Maths

Targets
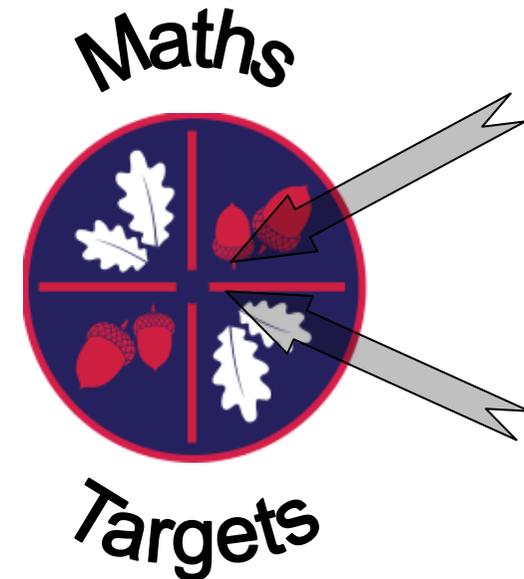
A booklet for parents

Year 5 Objectives

- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
- count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.
- interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.
- solve number problems and practical problems
- read Roman numerals to 1000 (M) and recognise years written in Roman numerals
- add and subtract whole numbers with more than 4 digits
- add and subtract numbers mentally with increasingly large numbers
- multiply and divide numbers mentally drawing upon known facts
- multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- recognise mixed numbers and improper fractions and convert from one form to the other
- add and subtract fractions with the same denominator and denominators that are multiples of the same number
- multiply proper fractions and mixed numbers by whole numbers
- compare and order fractions whose denominators are all multiples of the same number
- read & write decimal numbers as fractions (e.g.0.71 = 71/100)
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- read, write, order and compare numbers with up to three decimal places
- solve problems involving number up to three decimal places
- recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator hundred, and as a decimal fraction
- solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25

Car numbers

- Try reading a car number as a measurement in centimetres, then converting it to metres, e.g. 456cm, which is 4.56m, or 4m and 56cm.
- Try this with car numbers that have zeros in them, e.g. 307cm, which is 3.07m or 3m and 7cm; 370cm, which is 3.7m, or 3m and 70cm. These are harder!

Dicey subtractions

- Take turns to roll a die twice.
- Fill in the missing boxes.

$$400\square - 399\square$$

e.g.   4002 – 3994

- Count on from the smaller to the larger number, e.g *3995, 3996, 3997, 3998, 3999, 4000, 4001, 4002.*
- You counted on 8, so you score 8 points.
- Keep a running total of your score.
- The first to get 50 or more points wins.

Three in a line

A game for 2 or more people. You need a Snakes and Ladders board, counters or buttons and 2 dice.

- Take turns to roll the 2 dice.
- Add the numbers.
- Repeat this, then multiply the 2 answers together.
- Use a counter to cover this total number on the board.
- The first person to finish a line of counters is the winner.

Make it real!

Challenge your child to estimate the cost of the shopping by rounding amounts over 50p up to the next pound and rounding down to the next pound amounts less than 50p.

Tables

Make a times-table grid like this.

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

- Shade in all the tables facts that your child knows, probably the 1s, 2s, 3s, 4s, 5s and 10s.
- Some facts appear twice, e.g. 7 x 3 and 3 x 7, so cross out one of each.
- Are you surprised how few facts are left?
- There might only be 10 facts to learn. So take one fact a day and make up a silly rhyme together to help your child to learn it, e.g. *nine sevens are sixty-three, let's have lots of chips for tea!*

Telephone challenges

- Challenge your child to find numbers in the telephone directory/yellow pages where the digits add up to 42.
- Find as many as possible in 10 minutes.
- On another day, see if they can beat their previous total.

Telephone: 01732 762388

Target 1000

- Roll a die 6 times.
- Use the six digits to make two three-digit numbers.
- Add the two numbers together.
- How close to 1000 can you get?

- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
- establish whether a number up to 100 is prime and recall prime numbers up to 19
- recognise and use square numbers and cube numbers
- solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes, scaling by simple fractions and problems involving simple rates
- solve problems involving addition, subtraction, multiplication and division, including understanding the meaning of the equals sign
- solve problems involving number up to three decimal places
- round decimals with two decimal places to the nearest whole number and to one decimal place
- know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- draw given angles, and measure them in degrees (^{o})
- identify angles at a point and one whole turn (total 360°)
- identify angles at a point on a straight line and 1/2 a turn (total 180°)
- identify other multiples of 90°
- use the properties of rectangles to deduce related facts and find missing lengths and angles
- distinguish between regular and irregular polygons based on reasoning about equal sides and angles
- identify, describe and represent the position of a shape following a reflection or translation
- understand and use equivalences between metric units and common imperial units such as inches, pounds and pints
- convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- measure and calculate the perimeter and area of squares and rectangles
- estimate volume (e.g. using 1 cm^3 blocks to build cubes and cuboids) and capacity (e.g. using water)
- identify 3D shapes, including cubes and cuboids, from 2D representations
- complete, read and interpret information in tables, including timetables
- solve comparison, sum and difference problems using information presented in a line graph
- solve problems involving converting between units of time

Fun activities to do at home

The activities given will all help your child towards achieving some of the maths objectives by the end of Year 5.

Line it up

You need a ruler marked in centimetres and millimetres.

- Use the ruler to draw 10 different straight lines on a piece of paper.
- Ask your child to estimate the length of each line and write the estimate on the line.
- Now give them the ruler and ask them to measure each line to the nearest millimetre.
- Ask them to write the measurement next to the estimate, and work out the difference.
- A difference of 5 millimetres or less scores 10 points. A difference of 1 centimetre or less scores 5 points.
- How close to 100 points can she get?

My estimate 8.5 cm

Guess my number

- Choose a number between 0 and 1 with one decimal place, e.g. 0.6.
- Challenge your child to ask you questions to guess your number. You may only answer 'Yes' or 'No'. For example, he could ask questions like 'Is it less than a half?'
- See if he can guess your number in fewer than 5 questions.
- Now let your child choose a mystery number for you to guess.

Extend the game by choosing a number with one decimal place between 1 and 10, e.g. 3.6. You may need more questions!

Decimal number plates

- Each choose a car number plate with three digits.

P645 CJM

- Choose two of the digits, e.g. 4 and 6. Make the smallest and largest numbers you can, each with 1 decimal places, e.g. 4.6 and 6.4.
- Now find the difference between the two decimal numbers,
- e.g. 6.4 – 4.6 = 1.8.
- Whoever makes the biggest difference scores 10 points.
- The person with the most points wins.

Play the game again, but this time score 10 points for the smallest difference, or 10 points for the biggest total.

Finding areas and perimeters

> *Perimeter = distance around the edge of a shape*
> *Area of a rectangle = length x breadth (width)*

- Collect 5 or 6 used envelopes of different sizes.
- Ask your child to estimate the perimeter of each one to the nearest centimetre. Write the estimate on the back.
- Now measure. Write the estimate next to the measurement.
- How close did your child get?
- Now estimate then work out the area of each envelope.
- Were perimeters or areas easier to estimate? Why?

You could do something similar using an old newspaper, e.g.
- Work out which page has the biggest area used for photographs.
- Choose a page and work out the total area of news stories or adverts on that page.

Times tables

- Ask your child a different times-table fact every day,
- e.g. *What is 6 times 8? Can you use this to work out 12 x 8? What is 48 divided by 6?*

Dominoes

- To practice any multiplication table, pick a domino and add the dots. Ask your child to multiply the total by the table they are working on. Also ask for the associated facts.
  $8 \times 7 = 56$ $7 \times 8 = 56$ $56 \div 7 = 8$ $56 \div 8 = 7$
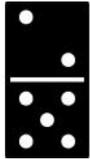
- Pick a domino
  This domino could represent 0.52 or 5.2 or 52. Use any of these numbers to:
  - Double or halve.
  - Multiply or divide by 10 or 100.

How much?

- While shopping, point out an item costing less than £1.
- Ask your child to work out in their head the cost of 3 items.
- Ask them to guess first. See how close they come.
- If you see any items labelled, for example, '2 for £3.50', ask them to work out the cost of 1 item for you, and to explain how they got the answer.

Number High Game (for 2 or more people)

You need the ace to 9 cards from a pack of shuffled playing cards.

- Deal out 3 cards.
- Make the highest total you can by using the numbers however you like.
- The person who gets the highest total wins the 3 cards.
- Then deal out 3 more cards and have another go.
- When you decide to stop playing, add up the numbers on the cards.
- Whoever has the highest score is the winner.

Car numbers

- Choose a car number.
- You may add or subtract 10, 20, 30, 40, 50, 60, 70, 80 or 90.
- Try to get as close as possible to 555.
- Who can get closest during a week?

Dicey division

For this game you need a 1–100 board (a snakes and ladders board will do), a die and 20 coins or counters.

- Take turns.
- Choose a two-digit number. Roll a die. If you roll 1, roll again.
- If your two-digit number divides exactly by the die number, put a coin on your chosen two-digit number. Otherwise, miss that turn.
- The first to get 10 counters on the board wins.

Number Low Game (for 2 or more people)

You need the ace to 9 cards from a pack of shuffled playing cards.

- Deal out 3 cards.
- Make the lowest possible total you can by using the numbers however you like.
- The person who gets the lowest total wins the 3 cards.
- Then deal out 3 more cards and have another go.
- When you decide to stop playing, add up the numbers on the cards.
- Whoever has the lowest score is the winner. You could vary the game by choosing a special number and see who can get closest to it.

Useful Resources

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1
$1 \times 1 = 1$
$1 \times 2 = 2$
$1 \times 3 = 3$
$1 \times 4 = 4$
$1 \times 5 = 5$
$1 \times 6 = 6$
$1 \times 7 = 7$
$1 \times 8 = 8$
$1 \times 9 = 9$

2
$2 \times 2 = 4$
$2 \times 3 = 6$
$2 \times 4 = 8$
$2 \times 5 = 10$
$2 \times 6 = 12$
$2 \times 7 = 14$
$2 \times 8 = 16$
$2 \times 9 = 18$

3
$3 \times 3 = 9$
$3 \times 4 = 12$
$3 \times 5 = 15$
$3 \times 6 = 18$
$3 \times 7 = 21$
$3 \times 8 = 24$
$3 \times 9 = 27$

4
$4 \times 4 = 16$
$4 \times 5 = 20$
$4 \times 6 = 24$
$4 \times 7 = 28$
$4 \times 8 = 32$
$4 \times 9 = 36$

5
$5 \times 5 = 25$
$5 \times 6 = 30$
$5 \times 7 = 35$
$5 \times 8 = 40$
$5 \times 9 = 45$

6
$6 \times 6 = 36$
$6 \times 7 = 42$
$6 \times 8 = 48$
$6 \times 9 = 54$

7
$7 \times 7 = 49$
$7 \times 8 = 56$
$7 \times 9 = 63$

8
$8 \times 8 = 64$
$8 \times 9 = 72$

9
$9 \times 9 = 81$

Gattegno Place Value Chart

ten thousands	10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000
thousands	1000	2000	3000	4000	5000	6000	7000	8000	9000
hundreds	100	200	300	400	500	600	700	800	900
tens	10	20	30	40	50	60	70	80	90
units	1	2	3	4	5	6	7	8	9
tenths	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
hundredths	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
thousandths	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009

1 whole

$\frac{1}{2}$ $\frac{1}{2}$

$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$

$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$

$\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$

$\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$

$\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$

$\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$

$\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$