



Useful websites to support your child's learning:

<http://www.standards.dfes.gov.uk/primaryframework/mathematics>

The updated curriculum for mathematics – Primary Framework.
Find out the full mathematics curriculum for each year.

www.woodlandsjunior.kent.sch.uk/ichild.html

A school website that contains lots of maths games and activities.

www.amblesideprimary.com/ambleweb/numeracy.html

A school website that contains lots of maths games and activities

www.beam.co.uk/about/MoM/MoM.html

A useful website that will allow you to download games and activities.

www.mathszone.co.uk

Click on the button that states 'key objectives' and then
go to the appropriate year group for your child.

www.coxhoedurham.sch.uk/Curriculum/Numeracy.htm

A school website that provides lots of links to many areas within
maths.

www.bbc.co.uk/schools/digger.htm

Access 'Adventures' and then play the maths activities.

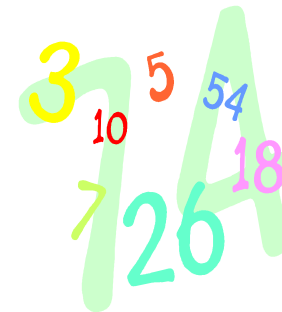
www.nrich.maths.org

Maths website with challenges for more able pupils.

www.bbc.co.uk/revisewise/maths

Revision exercises for end of KS2 SATs.

Maths in Year 6



Parent Booklet

This booklet is to help you to help your child with maths.

It explains some of the different strategies used for calculations in school
and gives ideas for you to help at home, including some activities and
websites.

Copyright

Teaching strategies have been taken from the National Numeracy
Strategy Framework for Teaching Mathematics, DFEE, 1999
Crown Copyright Reproduced under the terms of HMSO Guidance
Note 8

The Primary Framework for Mathematics is the most recent update of the mathematics curriculum. There have been a few changes in the content of the curriculum but the basics behind the strategies for calculation remain the same.

Children are expected to know a wide range of number facts by heart and should be able to use these facts and a range of mental strategies and written methods to work out unknown facts. More emphasis is on mental calculation strategies and up to the age of about 9 (Year 4) informal written recording should take place regularly as it is an important part of learning and understanding. Formal written methods follow only when your child is able to use a wide range of mental calculation strategies.

The booklet outlines a range of strategies that are used in Year 6 and it is hoped that these will assist you in supporting your child with their maths at home.

Examples of written calculation strategies:

**Pencil and Paper Methods (+ and -)
Informal Written Methods**

Addition – ThHTU + ThHTU, then numbers with any number of digits

Adding the most significant digits first

$\begin{array}{r} 5687 \\ + 1334 \\ \hline 6000 \\ 900 \\ 110 \\ \hline 11 \\ \hline 7021 \end{array}$	<p>extend to decimals →</p>	$\begin{array}{r} 128.17 \\ + 36.08 \\ \hline 100.00 \\ 50.00 \\ 14.00 \\ 0.10 \\ \hline 0.15 \\ \hline 164.25 \end{array}$
--	--	---

Compensation

$\begin{array}{r} 6775 \\ + 3688 \\ \hline 10775 \text{ (6775 + 4000)} \\ - 312 \\ \hline 10463 \end{array}$	$\begin{array}{r} 34.67 \\ + 27.88 \\ \hline 64.67 \text{ (34.67 + 30)} \\ - 2.12 \\ \hline 62.55 \end{array}$
--	--

Subtraction – ThHTU – ThHTU, then with any number of digits

Counting up (complementary addition)

$$\begin{array}{r} 7834 \\ - 4657 \\ \hline 43 \text{ (4700)} \\ 300 \text{ (5000)} \\ \hline 2834 \text{ (7834)} \\ 3177 \end{array}$$

Compensation

$$\begin{array}{r} 7834 \\ - 4657 \\ \hline 3134 \text{ (7834 - 4700)} \\ + 43 \\ \hline 3177 \end{array}$$

Standard Written Methods

Addition

Using 'carrying'

$$\begin{array}{r} 5687 \\ + 1334 \\ \hline 7021 \\ 111 \end{array}$$

$$\begin{array}{r} 6885 \\ + 5538 \\ \hline 12423 \\ 111 \end{array}$$

$$\begin{array}{r} 45735 \\ + 1335 \\ \hline 1264 \\ 427 \\ \hline 48761 \\ 112 \end{array}$$

Subtraction

Decomposition

$$\begin{array}{r} 6475 \\ - 2586 \\ \hline 3889 \end{array}$$

$$\begin{array}{r} 345.14 \\ - 8.27 \\ \hline 336.87 \end{array}$$

Pencil and Paper Methods (x and ÷)

Informal Written Methods

Multiplication

Approximate first

Grid method (ThHTU x U and HTU x TU)

3578 x 7 is approximately 3500 x 7 = 24500

x	3000	500	70	8	
7	21000	3500	490	56	= 25046

456 x 37 is approximately 450 x 40 = 18000

x	400	50	6	
30	12000	1500	180	13680
7	2800	350	42	
				+ <u>3192</u>
				16872

6.93 x 6 is approximately 7 x 6 = 42

x	6	0.9	0.03	
6	36	5.4	0.18	= 41.58

Division

Approximate first.

Using multiples of the divisor – HTU ÷ TU

867 ÷ 24 is approximately 900 ÷ 25 = 36

867 ÷ 24

$\begin{array}{r} 867 \\ -240 \text{ (10 x 24)} \\ \hline 627 \\ -240 \text{ (10 x 24)} \\ \hline 387 \\ -240 \text{ (10 x 24)} \\ \hline 147 \\ -144 \text{ (6 x 24)} \\ \hline 3 \end{array}$	<p>leading to</p> <p>→</p>	$\begin{array}{r} 867 \\ -720 \text{ (30 x 24)} \\ \hline 147 \\ -144 \text{ (6 x 24)} \\ \hline 3 \end{array}$
---	-----------------------------------	---

Answer: 36 3/24 → 36%

Standard Written Methods

Multiplication

Partitioning

Short multiplication: ThHTU x U

3578 x 7 is approximately 3500 x 7 = 24500

$\begin{array}{r} 3578 \\ \times 7 \\ \hline 21000 \text{ (3000 x 7)} \\ 3500 \text{ (500 x 7)} \\ 490 \text{ (70 x 7)} \\ \hline 56 \text{ (8 x 7)} \\ \hline 25046 \end{array}$	<p>leading to</p> <p>→</p>	$\begin{array}{r} 3578 \\ \times 7 \\ \hline 25046 \end{array}$
---	----------------------------	---

Long multiplication: HTU x TU

473 x 26 is approximately 450 x 30 = 13500

518 x 42 is approximately 500 x 40 = 20000

$\begin{array}{r} 473 \\ \times 26 \\ \hline 9460 \text{ (473 x 20)} \\ 2400 \text{ (400 x 6)} \\ 420 \text{ (70 x 6)} \\ \hline 18 \text{ (3 x 6)} \\ \hline 12298 \end{array}$	$\begin{array}{r} 518 \\ \times 42 \\ \hline 20720 \text{ (500 x 40)} \\ \hline 1036 \text{ (518 x 2)} \\ \hline 21756 \end{array}$
--	---

Extend to decimals with up to two decimal places

6.87 x 6 is approximately 7 x 6 = 42

5.34 x 48 is approximately 5.34 x 50 = 267

6.87 x 6

6.00 x 6 = 36.00
0.80 x 6 = 4.8
0.07 x 6 = <u>0.42</u>
41.22

5.34 x 48

5.00 x 40 = 200.00
5.00 x 8 = 40.00
0.30 x 40 = 12.00
0.30 x 8 = 2.40
0.04 x 40 = 1.60
0.04 x 8 = <u>0.32</u>
256.32

Division

Long division HTU \div TU

$896 \div 24$ is approximately $900 \div 25 = 36$

$$\begin{array}{r} 24 \overline{) 896} \\ \underline{- 720} \\ 176 \\ \underline{- 168} \\ 8 \end{array} \quad \begin{array}{l} (30 \times 24) \\ (7 \times 24) \end{array} \quad \xrightarrow{\text{extend to decimals}}$$

Answer: $37 \frac{8}{24}$ \longrightarrow $37 \frac{1}{3}$

$$\begin{array}{r} 24 \overline{) 896} \\ \underline{- 720} \\ 176 \\ \underline{- 168} \\ 8.0 \\ \underline{- 7.2} \\ 0.80 \\ \underline{- 0.72} \end{array} \quad \begin{array}{l} (30 \times 24) \\ (7 \times 24) \\ (0.3 \times 24) \\ (0.03 \times 24) \end{array}$$

Answer: **37.33**

Maths Vocabulary

This is some of the mathematical vocabulary that your child will use regularly in their maths lessons.

Place Value – greater than or equal to, less than or equal to, ascending order, descending order, is approximately equal to, round to the nearest thousand

Number – formula, divisibility, factor, square number, prime, prime factor, formula, factorise

Fractions and Decimals – proper/improper fraction, mixed number, numerator, denominator, equivalent, reduced to, cancel, ninth, twelfth, hundredth, to every, as many as, percentage, per cent, %, ratio, proportion, decimal,

Using a calculator – calculator, display, key, enter, clear, constant

Handling Data – database, line graph, bar line chart, mode, range, maximum/minimum value, outcome, mean, median, average,

Probability – fair, unfair, likely, unlikely, likelihood, certain, uncertain, probable, possible, impossible, chance, good chance, poor chance, no chance, risk, doubt, random, biased

Measure – gallon, square metre, square millimetre, 24-hour clock, 12-hour clock, approximately, estimate, scale, standard

Shape – congruent, octahedron, scalene triangle, axis of symmetry, reflective symmetry, parallel, perpendicular, x-axis, y-axis, quadrant, rotation, acute, obtuse, protractor, intersect, radius, diameter

Instructions – bisect, identify, reasoning, convert

General – spinner, method, strategy, equation,

Supporting your Child (Year 6)

Here are some examples of how you can encourage your child to use mathematics at home and in everyday activities:



SHOPPING

- £ Looking at prices
- £ Calculating change – which coins, different combinations.
- £ Weighing fruit and vegetables in the supermarket.
- £ Counting pocket money.
- £ Reading labels on bottles, packets, in order to discuss capacity, weight, shape and colour. £ Estimating the final bill at the end of shopping while waiting at the cash out.
- £ Calculating the cost of the family going to the cinema, swimming baths, etc



Cooking a Meal

Let your child plan and cook a meal for the family, with your support where it is needed. This involves a lot of maths. He/She can plan a menu and the shopping list, decide on amounts, working out value for money and calculating change. Cooking involves weighing, measuring, calculating and thinking about times and temperatures.



Time

- ⊕ Looking at the clock – identify the numbers telling the time using analogue and digital clocks.
- ⊕ Calculating how long a journey will take looking at train/bus/airline timetables.
- ⊕ Using TV guide to calculate the length of programmes.
- ⊕ Programming the video or the microwave.
- ⊕ Looking at the posting times on the post box.
- ⊕ Discussing events in the day e.g. teatime, bed time, bath time.
- ⊕ Setting an alarm clock.
- ⊕ Ask your child to keep a record of how long they watch the TV each day for a week. Work out the total time for the week. Work out the average time for a day.

Card Games

Use a pack of playing cards. Take out the picture cards. Take turns. Take a card and roll a dice. Multiply the two numbers. Roll one of the dice again. If it is an even number, double your score. If it is an odd number, treble your score. Keep a running total. The first to get over 301 wins.

One Million Pounds

Assume you have £1,000,000 to spend or give away. Plan with your child what to do with it, down to the last penny.

Year 6 Most children learn to:

<p>Using and applying mathematics</p> <p>Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use</p> <p>Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy</p> <p>Suggest, plan and develop lines of enquiry; collect, organise and represent information, interpret results and review methods; identify and answer related questions</p> <p>Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols (e.g. the cost of c pens at 15 pence each is 15c pence)</p> <p>Explain reasoning and conclusions, using words, symbols or diagrams as appropriate</p>	<p>Counting & understanding number</p> <p>Find the difference between a positive and a negative integer, or two negative integers, in context</p> <p>Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line</p> <p>Express a larger whole number as a fraction of a smaller one (e.g. recognise that 8 slices of a 5-slice pizza represents $\frac{8}{5}$ or $1\frac{3}{5}$ pizzas); simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator</p> <p><i>Express one quantity as a percentage of another (e.g. express £400 as a percentage of £1000); find equivalent percentages, decimals and fractions</i></p> <p>Solve simple problems involving direct proportion by scaling quantities up or down</p>	<p>Knowing & using number facts</p> <p><i>Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$)</i></p> <p>Use knowledge of multiplication facts to derive quickly squares of numbers to 12×12 and the corresponding squares of multiples of 10</p> <p>Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit numbers</p> <p>Use approximations, inverse operations and tests of divisibility to estimate and check results</p>	<p>Calculating</p> <p>Calculate mentally with integers and decimals: $U.t \pm U.t$, $TU \times U$, $TU \div U$, $U.t \times U$, $U.t \div U$</p> <p><i>Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer</i></p> <p>Relate fractions to multiplication and division (e.g. $6 \div 2 = \frac{1}{2}$ of 6 = $6 \times \frac{1}{2}$); express a quotient as a fraction or decimal (e.g. $67 \div 5 = 13.4$ or $13\frac{2}{5}$); find fractions and percentages of whole-number quantities (e.g. $\frac{3}{8}$ of 96, 65% of £260)</p> <p>Use a calculator to solve problems involving multi-step calculations</p>
<p>Understanding shape</p> <p>Describe, identify and visualise parallel and perpendicular edges or faces; use these properties to classify 2-D shapes and 3-D solids</p> <p>Make and draw shapes with increasing accuracy and apply knowledge of their properties</p> <p><i>Visualise and draw on grids of different types where a shape will be after reflection, after translations, or after rotation through 90° or 180° about its centre or one of its vertices</i></p> <p>Use coordinates in the first quadrant to draw, locate and complete shapes that meet given properties</p> <p>Estimate angles, and use a protractor to measure and draw them, on their own and in shapes; calculate angles in a triangle or around a point</p>	<p>Measuring</p> <p><i>Select and use standard metric units of measure and convert between units using decimals to two places (e.g. change 2.75 litres to 2750 ml, or vice versa)</i></p> <p>Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, for example when using different instruments</p> <p>Calculate the perimeter and area of rectilinear shapes; estimate the area of an irregular shape by counting squares</p>	<p>Handling data</p> <p>Describe and predict outcomes from data using the language of chance or likelihood</p> <p><i>Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask</i></p> <p>Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret pie charts</p> <p>Describe and interpret results and solutions to problems using the mode, range, median and mean</p>	

* **Areas in italics – show end of year (EOY) objectives**