Developing Critical Thinkers and Young Problem Solvers at Acresfield

Year 5

Our Approach to Maths

This booklet is designed to give parents an overview of expectations in Year 5 linked to the maths curriculum.

It outlines the following:

- ✓ Curriculum expectations in number for children in Year 5
- ✓ Approaches to learning used by staff at Acresfield
- ✓ Ways you can support your child at home

-In Year 5, children should become fluent in the order and place value of numbers up to 1 000 000 and confidently round any number up to 1 000 000, to the nearest 10, 100, 1000, 10 000 and 100 000
- They will read Roman numerals to 1000
- They will confidently use formal written methods to add, subtract, multiply and divide whole numbers with more than 4 digits building on all that they learnt in year 4.
-Use mental strategies for all four operations to calculate with increasingly large numbers
-use and understand the terms: prime number, prime factors and composite (non-prime) numbers
- Children will confidently convert between fractions and decimals and explore percentages in year five, beginning to move away from models and images and seeing things in a more abstract way.

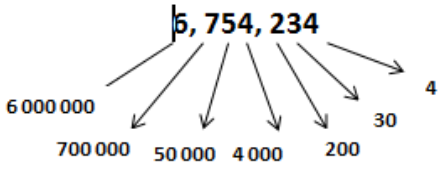
At Acresfield, we continue to develop the children's confidence with their mental strategies and also with their formal written methods. The children in year 5 build on the work that they did in year 4 and become increasingly confident with their written methods for calculation working with much larger numbers. Children in year 5 are able to calculate mentally with increasingly large numbers and are able to derive other known facts. Children build upon their knowledge of fractions, decimals and percentages and confidently convert between them.

General Number and Place Value

[What the national curriculum expects children to be able to do in Year 5]

- ✓ Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit

How might this look?



- ✓ 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
- ✓ Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
- ✓ Solve number problems and practical problems that involve all of the above
- ✓ Read Roman numerals to 1000 [M] and recognise years written in Roman numerals

Addition and Subtraction

- ✓ Add and subtract whole numbers with more than 4 digits, including using formal written methods [column addition and subtraction]

How might this look?

789 + 642 becomes

$$\begin{array}{r} 7\ 8\ 9 \\ +\ 6\ 4\ 2 \\ \hline 1\ 4\ 3\ 1 \\ \hline 1\ 1 \end{array}$$

Answer: 1431

932 – 457 becomes

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 9\ 3\ 2 \\ -\ 4\ 5\ 7 \\ \hline {\scriptstyle 5\ 6} \\ 4\ 7\ 5 \end{array}$$

Answer: 475

$$\begin{array}{r} 2\ 3\ .\ 3\ 6\ 1 \\ 9\ .\ 0\ 8\ 0 \\ 5\ 9\ .\ 7\ 7\ 0 \\ +\ 1\ .\ 3\ 0\ 0 \\ \hline 9\ 3\ .\ 5\ 1\ 1 \\ \hline {\scriptstyle 2\ 1\ \ \ 2} \end{array}$$

✓ Add and subtract numbers mentally with increasingly large numbers

How might this look?

750 take away 255	**4500 minus 1050**	**1800 less than 3300**
take 400 from 1360	**subtract 3250 from 7600**	**4000 less than 11 580**

✓ Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

✓ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

How might this look?

13 502 people were at the match last week and there are 2483 more this week, how many more people need to attend to bring the total to the club's target of 20 000 people?

Multiplication and Division

✓ Recall multiplication facts for tables up to 12 x 12

✓ Identify multiplies and factors, including finding all factor pairs of a number and common factors of two numbers

What does this look like?

A factor is a number that you can multiply by another number to make a number. The factors of 20 are: (1 and 20) (4 and 5) (2 and 10) Common factors are factors that are shared with another number. For example 2 is a common factor as it is a factor of 20 , 6 and 12.

✓ 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

✓ 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.

What does this look like?

Long multiplication

24 × 16 becomes

$$\begin{array}{r} {\scriptstyle 2\ \ } \\ 2\ 4 \\ \times\ 1\ 6 \\ \hline 2\ 4\ 0 \\ 1\ 4\ 4 \\ \hline 3\ 8\ 4 \end{array}$$

Answer: 384

124 × 26 becomes

$$\begin{array}{r} {\scriptstyle 1\ 2\ \ } \\ 1\ 2\ 4 \\ \times\ \ 2\ 6 \\ \hline 2\ 4\ 8\ 0 \\ 7\ 4\ 4 \\ \hline 3\ 2\ 2\ 4 \\ {\scriptstyle 1\ 1\ \ } \end{array}$$

Answer: 3224

124 × 26 becomes

$$\begin{array}{r} {\scriptstyle 1\ 2\ \ } \\ 1\ 2\ 4 \\ \times\ \ 2\ 6 \\ \hline 7\ 4\ 4 \\ 2\ 4\ 8\ 0 \\ \hline 3\ 2\ 2\ 4 \\ {\scriptstyle 1\ 1\ \ } \end{array}$$

Answer: 3224

✓ Multiply and divide numbers mentally drawing upon known facts

✓ Divide numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainders appropriately for the context answering questions that may need to be rounded up or down.

What does this look like?

432 ÷ 5 becomes

$$\begin{array}{r} 8\ \ 6\ \ \text{r}\,2 \\ 5\overline{)\,4\ \ 3^{3}\ \ 2} \end{array}$$

Answer: 86 remainder 2

✓ Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000

✓ Recognise and use square numbers and cube numbers and the notation for squared [²] and cubed [³]

What does this look like?

is the same as 6x 6

is the same as 5x5x5

✓ Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes

What does this look like?

Egg boxes hold 6 eggs. A farmer collects 439 eggs. How many boxes can he fill?

✓ Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign

✓ Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates

Fractions [including decimals]

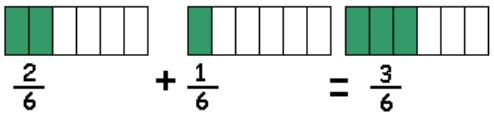
✓ Compare and order fractions whose denominators are all multiples of the same number

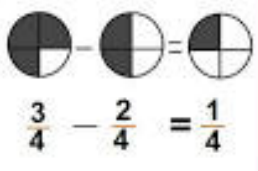
✓ Identify, name and write equivalent fractions of a given fraction

✓ Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements greater than 1 whole as a mixed number for example 2/5 + 4/5 = 6/5 = 1 and 1/5

✓ Add and subtract fractions with the same denominator and denominators that are multiples of the same number

What does this look like?





✓ Multiply proper fractions and mixed numbers by whole numbers.

What does this look like?

Proper Fractions

$\frac{4}{5} \times 7 = ?$

Since $7 = \frac{7}{1}$

$\frac{4}{5} \times \frac{7}{1} = \frac{28}{5}$

Mixed Number Fractions

$1\ {}^{3}/_{8} \times 3 = ?$

${}^{11}/_{8} \times {}^{3}/_{1} = {}^{33}/_{8} \quad = 4\ {}^{1}/_{8}$

✓ Read and write decimal numbers as fractions e.g 0.71 = 71/100

✓ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

✓ Round decimals with two decimal places to the nearest whole number and to one decimal place

✓ Read, write, order and compare numbers with 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 100 and as a decimal
- ✓ Solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions of a multiple of 10 or 25.

What does this look like?

Write in the missing numbers. 30% of 60 is ☐
30% of ☐ is 60

How Parents Can Help at Home

- ✓ Build maths into everyday life
- ✓ Support the methods used in school
- ✓ Use objects to help your child to see the number
- ✓ Shape and measures work

In Year 5, the breadth and range of expectations of where children should be in their maths learning, mean that they must begin the year with a firm foundation and feel secure in their basic maths skills. The children will generally have a piece of homework each week. These activities set are designed to reinforce learning in the classroom.

During the year, parents can offer support to their child by ensuring those basic number skills are in place by reinforcing the work being done in school, at home. For example recall of multiplication tables up to 12 x 12; confidence with written methods for the four number operations; an understanding of fractions, decimals, percentages and their relationship and an understanding of place value with larger numbers up to 10,000 000.

The children will also be building on their **measures** work, making approximate equivalences between metric units and common imperial units such as inches, pounds and pints.

They will need to measure and calculate the **area of rectilinear shapes** in cm and m and use estimation when exploring volume and capacity. Children will use their knowledge of measure conversions and formal written methods to help them solve problems.

In **time**, children will convert between all different units of time and use this knowledge to solve a range of problems. As part of the curriculum, the children will also be looking at **properties of shape**, measuring and drawing angles. They will explore **position and direction** focusing on reflection and translation and read and interpret **statistics** shown on line graphs and timetables.