



Maths at Beckford



October 2017

- We believe that pupils learn maths best when they are given opportunities to solve problems to develop their knowledge and understanding and make links between different areas of mathematics, seeing patterns and making generalisations.
- We create an exciting maths learning environment where all pupils respond to high levels of expectation and challenge but are also adequately supported depending on their personal needs.
- We use the concrete, pictorial, abstract approach throughout the school (see the Beckford Calculation Policy for more information).

We aim to ensure all pupils:

*- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately*

*- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language*

*- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions*

"The majority of pupils will move through the programmes of study at broadly the same pace"

(National Curriculum September 2013)

"pupils make connections in mathematics....pupils see the 'big picture'.....links are made between maths and other subjects"

"pupils take the initiative in solving problems.....problem solving, discussion and investigation is integral to pupils' learning"

(Ofsted - Outstanding Practice - Mathematics survey visits April 2014)

At Beckford we believe in;

- contextualised led learning

By putting learning into a relevant context pupils will gain a deeper understanding; this should support throughout the learning journey rather than only at the end

- talk in maths

By orally clarifying their thinking, pupils consolidate their understanding. Maths talk is supported through a shared framework of sentence prompts and high expectations and modelled explanations. Listening to pupils' discussion and explanations provides an invaluable assessment opportunity.

- use of resources, models and images

All pupils benefit from the appropriate use of resources to support their understanding of mathematical concepts. Teachers have a responsibility to ensure that pupils can move from tangible experiences before being expected to move to the abstract. This should be the expectation for pupils of all ages and attainment.

- challenge for all

All pupils should experience maths learning which challenges and stretches them. Pupils should be encouraged to develop their resilience and teachers should plan activities where outcomes are not limited. All pupils in a class should experience a similar amount of success.

- depth before breadth

The National Curriculum is a mastery curriculum whereby the expectation is that the majority of a class will have learnt and understood the objectives by the end of the year. Extension is through enrichment, reasoning and depth of understanding. There is not an expectation to move to the subsequent year's teaching programme.

- assessment for learning

This is an integral part of all lessons. Teachers are expected to respond to pupils within a lesson and adjust planning and teaching to meet pupils' needs.

- marking and feedback

This is the most effective way of moving pupils' learning on when carried out effectively. Feedback needs to be appropriate and accessible to the pupil and focused on celebrating achievements and is essential to inform the next lesson. Structures are in place to allow pupils to respond to marking.

- meaningful maths links

Teachers are expected to plan for a learning journey, linking lessons together so there is progress over time. Opportunities to see maths in action should be exploited in other curriculum areas whenever possible.

- maths learning additional to the maths lesson

There is an expectation at Beckford for additional maths learning to take place each day. This may be as Focus of the Day, mental maths, maths meetings, transitions, homework and target practise, and cross-curricular learning.

Year 1 Maths Overview

Autumn Term

1. Numbers to 10	<ul style="list-style-type: none">• count to ten, forwards and backwards, beginning with 0 or 1, or from any given number• count, read and write numbers to 10 in numerals and words• identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least• given a number, identify one more and one less• count in multiples of twos• double and halve numbers within 10• estimate numbers within 10
2. Addition and subtraction within 10 (Combination and partitioning)	<ul style="list-style-type: none">• represent and use number bonds and related subtraction facts [within 10]• add and subtract one-digit ... numbers [to 10], including zero• read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems
3. Shapes and patterns	<ul style="list-style-type: none">• recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]; 3-D shapes [for example, cuboids (including cubes), pyramids and spheres• describe position, direction and movement, including whole and half turns
4. Numbers to 20	<ul style="list-style-type: none">• count to twenty, forwards and backwards, beginning with 0 or 1, or from any given number• count, read and write numbers from 1 to 20 in numerals and words• identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least• count in multiples of twos and fives• double and halve numbers within 20
5. Addition and subtraction within 20 (Augmentation and reduction)	<ul style="list-style-type: none">• represent and use number bonds and related subtraction facts within 20• add and subtract one-digit and two-digit numbers to 20, including zero• read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$• estimate to check answers

Year 1 Maths Overview

Spring Term

6. Time	<ul style="list-style-type: none">• tell the time to the hour and half past the hour and draw the hands on a clock face to show these times• recognise and use language relating to dates, including days of the week, weeks, months and years• compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later] and measure and begin to record time (hours, minutes, seconds)• sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]• describe position, direction and movement, including whole, half, quarter and three-quarter turns, with reference to the clock face
7. Exploring calculation strategies within 20	<ul style="list-style-type: none">• represent and use number bonds and related subtraction facts within 20• add and subtract one-digit and two-digit numbers to 20, including zero• read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$
8. Numbers to 50	<ul style="list-style-type: none">• count to fifty, forwards and backwards, beginning with 0 or 1, or from any given number; count in twos, fives and tens.• count, read and write numbers from 1 to 20 in numerals and words• identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least• given a number, identify one more and one less• recognise the place value of each digit in a two-digit number (tens, ones) (Y2)
9. Addition and subtraction within 20 (Comparison and difference)	<ul style="list-style-type: none">• represent and use number bonds and related subtraction facts within 20• add and subtract one-digit and two-digit numbers to 20, including zero• add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; adding three one-digit numbers (Y2)• read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$• estimate to check answers
10. Fractions	<ul style="list-style-type: none">• recognise, find and name a half as one of two equal parts of an object, shape or quantity• recognise, find and name a quarter as one of four equal parts of an object, shape or quantity
11. Measures (1): Length and mass	<ul style="list-style-type: none">• compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]; mass/weight [for example, heavy/light, heavier than, lighter than]• measure and begin to record the following: lengths and heights; mass/weight

Year 1 Maths Overview

Summer Term

12. Numbers 50 to 100 and beyond	<ul style="list-style-type: none">• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number; count on and back in twos fives and tens.• count, read and write numbers from 1 to 20 in numerals and words; read and write numbers to at least 100 in numerals• given a number, identify one more and one less• identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least• recognise the place value of each digit in a two-digit number (tens, ones) (Y2)
13. Addition and subtraction (Applying strategies and structures)	<ul style="list-style-type: none">• represent and use number bonds and related subtraction facts within 20• add and subtract one-digit and two-digit numbers, including zero• add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers (Y2)• read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$• estimate to check answers
14. Money	<ul style="list-style-type: none">• recognise and know the value of different denominations of coins and notes• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$
15. Multiplication and division	<ul style="list-style-type: none">• solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher• recognise, find and name a half as one of two equal parts of a quantity• recognise, find and name a quarter as one of four equal parts of a quantity
16. Measures (2): Capacity and volume	<ul style="list-style-type: none">• compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]; mass/weight [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]• measure and begin to record the following: lengths and heights; mass/weight; capacity and volume

Year 2 Maths Overview

Autumn Term

<p>1. Number within 100</p>	<ul style="list-style-type: none"> • use place value and number facts to solve problems • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers to 100 using different representations, including the number line • compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs • read and write numbers to at least 100 in numerals and in words • count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
<p>2. Addition and subtraction of 2-digit numbers</p>	<ul style="list-style-type: none"> • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers
<p>3. Addition and subtraction word problems</p>	<ul style="list-style-type: none"> • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems • solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods • estimate the answer to a calculation and use inverse operations to check answers (Y3)
<p>4. Measures: length</p>	<ul style="list-style-type: none"> • choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit, using rulers and scales • compare and order length and record the results using $>$, $<$ and $=$ • apply knowledge of numbers to 100 to read scales to the nearest appropriate standard unit in the context of length (m/cm)
<p>5. Graphs</p>	<ul style="list-style-type: none"> • interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data
<p>6. Multiplication and division 2, 5 and 10</p>	<ul style="list-style-type: none"> • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Times Tables

2s

3s

4s

5s

6s

7s

8s

9s

10s

11s

12s

Teach
Revise

Recommended order: 10s, 5s, 2s

Year 2 Maths Overview

Spring Term

<p>7. Time</p>	<ul style="list-style-type: none"> tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times know the number of minutes in an hour and the number of hours in a day compare and sequence intervals of time
<p>8. Fractions</p>	<ul style="list-style-type: none"> recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity write simple fractions for example, $\frac{1}{2}$ of 6 = 3 recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$
<p>9. Addition and subtraction of 2-digit numbers (regrouping and adjusting)</p>	<ul style="list-style-type: none"> recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods estimate the answer to a calculation and use inverse operations to check answers (Y3)
<p>10. Money</p>	<ul style="list-style-type: none"> recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value find different combinations of coins that equal the same amounts of money solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
<p>11. Faces, shapes and patterns; lines and turns</p>	<ul style="list-style-type: none"> identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line compare and sort common 2-D and 3-D shapes and everyday objects order and arrange combinations of mathematical objects in patterns and sequences use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise)

Times Tables

2s

3s

4s

5s

6s

7s

8s

9s

10s

11s

12s

Teach

Revise

Recommended order: 10s, 5s, 2s

Year 2 Maths Overview

Summer Term

<p>12. Number within 1000</p>	<ul style="list-style-type: none"> • use place value and number facts to solve problems • identify, represent and estimate numbers to 1000 using different representations (Y3) • recognise the place value of each digit in a three-digit number (hundreds, tens, ones) (Y3) • compare and order numbers up to 1000 (Y3) • read and write numbers up to 1000 in numerals and in words (Y3) • count from 0 in multiples of 100; find 10 or 100 more or less than a given number (Y3) • apply knowledge of numbers to 1000 to read scales
<p>13. Measures: capacity and volume</p>	<ul style="list-style-type: none"> • choose and use appropriate standard units to estimate and measure capacity (litres/ml) and temperature (°C) to the nearest appropriate unit, using scales, thermometers and measuring vessels • compare and order volume and capacity and record the results using >, < and = • apply knowledge of numbers to 1000 to read scales to the nearest appropriate standard unit in the context of capacity (litres/ml) and temperature (°C) • using known facts to derive new facts (2ml + 2ml =4ml so 200ml + 200ml =400ml)
<p>14. Measures: mass</p>	<ul style="list-style-type: none"> • choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order mass and record the results using >, < and = • apply knowledge of numbers to 1000 to read scales to the nearest appropriate standard unit in the context of mass (kg/g) • using known facts to derive new facts (2g + 2g =4g so 200g + 200g =400g)
<p>15. Exploring calculation strategies</p>	<ul style="list-style-type: none"> • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • add and subtract numbers mentally, including: a two-digit number and ones; a two-digit number and tens; adding three one-digit numbers • add and subtract numbers with up to two digits, using written methods
<p>16. Multiplication and division (3x and 4x tables)</p>	<ul style="list-style-type: none"> • recall and use multiplication and division facts for the 3 and 4 multiplication tables (Y3) • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot

Times Tables

- 2s
- 3s
- 4s
- 5s
- 6s
- 7s
- 8s
- 9s
- 10s
- 11s
- 12s

Teach
Revise

Recommended order: 10s, 5s, 2s

Year 3 Maths Overview

Autumn Term

1. Number sense and exploring calculation strategies	<ul style="list-style-type: none">• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction• recognise the place value of each digit (tens, ones), compare and order numbers up to 100• find 10 more or less than a given number• read and write numbers up to 100 in numerals and in words• solve number problems and practical problems involving these ideas• identify, represent and estimate numbers using different representations, including the number line• add and subtract amounts of money to give change, using both £ and p in practical contexts
2. Place value	<ul style="list-style-type: none">• identify, represent and estimate numbers using different representations• find 10 or 100 more or less than a given number• recognise the place value of each digit in a three-digit number (hundreds, tens, ones)• compare and order numbers up to 1000• read and write numbers up to 1000 in numerals and in words• solve number problems and practical problems involving these ideas• count from 0 in multiples of 50 and 100
3. Graphs	<ul style="list-style-type: none">• interpret and present data using bar charts, pictograms and tables• solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables
4. Addition and subtraction	<ul style="list-style-type: none">• add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds• add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction• estimate the answer to a calculation and use inverse operations to check answers• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction
5. Length and perimeter	<ul style="list-style-type: none">• measure, compare, add and subtract: lengths (m/cm/mm)• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction• measure the perimeter of simple 2-D shapes• continue to measure using the appropriate tools and units, progressing to using a wider range of measures, including comparing and using mixed ... and simple equivalents of mixed units (for example, 5m = 500cm)

Times Tables

2s
3s
4s
5s
6s
7s
8s
9s
10s
11s
12s

Teach
Revise

Recommended order: 4s, 8s, 3s, 6s

Year 3 Maths Overview

Spring Term

<p>6. Multiplication and division</p>	<ul style="list-style-type: none"> recall and use multiplication and division facts for the 3 and 4 multiplication tables count from zero in multiples of 4 solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects
<p>7. Deriving multiplication and division facts</p>	<ul style="list-style-type: none"> recall and use multiplication and division facts for the 3 and 4 multiplication tables write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects
<p>8. Time</p>	<ul style="list-style-type: none"> tell and write the time using 12-hour analogue and digital clocks, including using Roman numerals from I to XII estimate and read time with increasing accuracy to the nearest minute record and compare time in terms of seconds, minutes and hours use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight know the number of seconds in a minute and the number of days in each month, year and leap year compare durations of events [for example to calculate the time taken by particular events or tasks]
<p>9. Fractions</p>	<ul style="list-style-type: none"> recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators count up and down in tenths recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 recognise and show, using diagrams, equivalent fractions with small denominators add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] compare and order unit fractions, and fractions with the same denominators solve problems that involve all of the above

Times Tables

2s
3s
4s
5s
6s
7s
8s
9s
10s
11s
12s

Teach
Revise

Recommended order: 4s, 8s, 3s, 6s

Year 3 Maths Overview

Summer Term

10. Angles and shape	<ul style="list-style-type: none">• recognise angles as a property of shape or a description of a turn• identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle• identify horizontal and vertical lines and pairs of perpendicular and parallel lines• draw 2-D shapes and make 3-D shapes using modelling materials• recognise 3-D shapes in different orientations and describe them• measure the perimeter of simple 2-D shapes
11. Measures	<ul style="list-style-type: none">• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction• continue to measure using the appropriate tools and units, progressing to using a wider range of measures, including comparing and using mixed units (for example, 1 kg and 200g) and simple equivalents of mixed units (for example, 5m = 500cm)
12. Securing multiplication & division	<ul style="list-style-type: none">• write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods• recall and use multiplication and division facts for the 8 multiplication tables• count from zero in multiples of 8
13. Exploring calculation strategies and place value	<ul style="list-style-type: none">• add and subtract numbers mentally• find 1000 more or less than a given number; recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) (Y4)• order and compare numbers beyond 1000 (Y4)• round any number to the nearest 10, 100 or 1000 (Y4)

Times Tables

2s
3s
4s
5s
6s
7s
8s
9s
10s
11s
12s

Teach
Revise

Recommended order: 4s, 8s, 3s, 6s

Year 4 Maths Overview

Autumn Term

Unit 1 Reasoning with 4 digit numbers	<ul style="list-style-type: none">• find 1000 more or less than a given number• recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)• order and compare numbers beyond 1000• solve number and practical problems that involve all of the above and with increasingly large positive numbers• identify, represent and estimate numbers using different representations• round any number to the nearest 10, 100 or 1000• count in multiples of 6, 7, 9, 25 and 1000
Unit 2 Addition and subtraction	<ul style="list-style-type: none">• add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate• estimate and use inverse operations to check answers to a calculation• solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why
Unit 3 Multiplication and division	<ul style="list-style-type: none">• recall multiplication and division facts for multiplication tables up to 12×12• solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects• recognise and use factor pairs and commutativity in mental calculations• use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers• multiply two-digit and three-digit numbers by a one-digit number using formal written layout
Unit 4 Interpreting and presenting data	<ul style="list-style-type: none">• solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs

Times Tables

2s
3s
4s
5s
6s
7s
8s
9s
10s
11s
12s

Teach
Revise

Recommended order: 9s, 11s, 12s

Year 4 Maths Overview

Spring Term

<p>Unit 5 Securing multiplication facts</p>	<ul style="list-style-type: none"> recall multiplication and division facts for multiplication tables up to 12×12
<p>Unit 6 Fractions</p>	<ul style="list-style-type: none"> add and subtract fractions with the same denominator recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] (Y5) recognise and show, using diagrams, families of common equivalent fractions count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
<p>Unit 7 Time</p>	<ul style="list-style-type: none"> convert between different units of measure [for example, hour to minute] problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days write and convert time between analogue and digital 12- and 24-hour clocks
<p>Unit 8 Decimals</p>	<ul style="list-style-type: none"> find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths recognise and write decimal equivalents of any number of tenths or hundredths recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ round decimals with one decimal place to the nearest whole number compare numbers with the same number of decimal places up to two decimal places
<p>Unit 9 Area and perimeter</p>	<ul style="list-style-type: none"> measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres convert between different units of measure [for example, kilometre to metre] find the area of rectilinear shapes by counting squares calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) (Y5) measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres (Y5)

Times Tables

2s
3s
4s
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9s
10s
11s
12s

Teach
Revise

Recommended order: 9s, 11s, 12s

Year 4 Maths Overview

Summer Term

Unit 10 Solving measure and money problems	<ul style="list-style-type: none">convert between different units of measure [for example, kilometre to metre; hour to minute]solve simple measure and money problems involving fractions and decimals to two decimal placesestimate, compare and calculate different measures, including money in pounds and pence
Unit 11 2-D shape and symmetry	<ul style="list-style-type: none">compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizesidentify acute and obtuse angles and compare and order angles up to two right angles by sizeidentify lines of symmetry in 2-D shapes presented in different orientationscomplete a simple symmetric figure with respect to a specific line of symmetry
Unit 12 Position and direction	<ul style="list-style-type: none">describe positions on a 2-D grid as coordinates in the first quadrantdescribe movements between positions as translations of a given unit to the left/right and up/downplot specified points and draw sides to complete a given polygon
Unit 13 Reasoning with patterns and sequences	<ul style="list-style-type: none">read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place valuecount backwards through zero to include negative numbersrecognise and use square numbers, and the notation for squared (2) (Y5)
Unit 14 3-D shape	<ul style="list-style-type: none">identify 3-D shapes, including cubes and other cuboids, from 2-D representations (Y5)

Times Tables

2s
3s
4s
5s
6s
7s
8s
9s
10s
11s
12s

Teach
Revise

Recommended order: 9s, 11s, 12s

Year 5 Maths Overview

Autumn Term

Unit 1 Reasoning with large whole numbers	<ul style="list-style-type: none">• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit• count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000• 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
Unit 2 Problem solving with integer addition and subtraction	<ul style="list-style-type: none">• add and subtract numbers mentally with increasingly large numbers• add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)• 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
Unit 3 Line graphs and timetables	<ul style="list-style-type: none">• solve comparison, sum and difference problems using information presented in a line graph• complete, read and interpret information in tables, including timetables• solve problems involving converting between units of time
Unit 4 Multiplication and division	<ul style="list-style-type: none">• identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers• recognise and use square numbers and the notation for squared (2)• 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 and divide whole numbers by 10, 100 and 1000• multiply and divide numbers mentally drawing upon known facts• solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes• multiply numbers up to 4 digits by a one- or two-digit number using a formal written method• 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• solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
Unit 5 Perimeter and area	<ul style="list-style-type: none">• measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres• calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of non-rectilinear shapes

Revise all x tables. Recommended order: 10s, 5s, 2s, 4s, 8s, 3s, 6s, 9s, 11s, 12s.

Year 5 Maths Overview

Spring Term

<p>Unit 6 Fractions and decimals</p>	<ul style="list-style-type: none"> compare and order fractions whose denominators are all multiples of the same number recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] 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
<p>Unit 7 Angles</p>	<ul style="list-style-type: none"> know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles draw given angles, and measure them in degrees ($^{\circ}$) identify: angles at a point and one whole turn (total 360°); angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°); other multiples of 90°
<p>Unit 8 Fractions, decimals and percentages</p>	<ul style="list-style-type: none"> 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, supported by materials and diagrams solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates 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 $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and fraction and decimal equivalents of percentages that are multiples of 10 and 25 solve problems involving number up to three decimal places use all four operations to solve problems involving measure (for example length, mass, volume, money) using decimal notation, including scaling associate a fraction with division (Y6) use common factors to simplify fractions; use common multiples to express fractions in the same denomination (Y6)
<p>Unit 9 Transformations</p>	<ul style="list-style-type: none"> identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed use the properties of rectangles to deduce related facts and find missing lengths and angles describe positions on the full coordinate grid (all four quadrants) (Y6) interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero use negative numbers in context, and calculate intervals across zero (Y6)

Revise all x tables. Recommended order: 10s, 5s, 2s, 4s, 8s, 3s, 6s, 9s, 11s, 12s.

Year 5 Maths Overview

Summer Term

Unit 10 Converting units of measure	<ul style="list-style-type: none">• convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram)• multiply and divide whole numbers and those involving decimals by 10, 100 and 1000• understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
Unit 11 Calculating with whole numbers and decimals	<ul style="list-style-type: none">• use all four operations to solve problems involving measure (for example length, mass, volume, money) using decimal notation, including scaling• solve problems involving number up to three decimal places• 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
Unit 12 2-D and 3-D shape	<ul style="list-style-type: none">• distinguish between regular and irregular polygons based on reasoning about equal sides and angles• use the properties of rectangles to deduce related facts and find missing lengths and angles• identify 3-D shapes, including cubes and other cuboids, from 2-D representations• recognise, describe and build simple 3-D shapes, including making nets (Y6)• illustrate and name parts of circles, including radius, diameter and circumference and know that diameter is twice the radius. (Y6)
Unit 13 Volume	<ul style="list-style-type: none">• estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]• recognise and use cube numbers and the notation for cubed (3)
Unit 14 Problem solving	<ul style="list-style-type: none">• consolidation and application opportunities

Revise all x tables. Recommended order: 10s, 5s, 2s, 4s, 8s, 3s, 6s, 9s, 11s, 12s.

Year 6 Maths Overview

(supported by Hamilton Trust materials as appropriate)

Autumn Term

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| <ul style="list-style-type: none">• Revise understanding of what each digit represents in a numbers with up to two decimal places• Revise using decimal notation for tenths and hundredths• Begin to recognise and use decimals with three places• Order numbers with up to two decimal places (including different numbers of places) and place them on a number line• Round a number with two decimal places to the nearest tenth or to the nearest whole number• Place 6-digit numbers on a line and compare pairs of numbers, use < and >. |
| <ul style="list-style-type: none">• Give a number between two numbers with one decimal place, e.g. 2.5 and 2.6, and use correctly the symbols for >, < and = Understand place value in numbers with three decimal places.• Count on and back in steps of 0.1, 0.25 Count on and back in steps of 0.001 and 0.01. Add and subtract multiples of 0.1, 0.01 or 0.001.• Measure and calculate the perimeter of rectilinear shapes perimeters of rectangles and composite shapes• Measure and calculate the area of rectilinear shapes• Estimate the area of an irregular shape by counting squares calculate the area from scale drawings• Calculate the perimeter of simple compound shapes that can be split into rectangles• Calculate the area of simple compound shapes that can be split into rectangles |
| <ul style="list-style-type: none">• Describe, identify and visualise parallel and perpendicular edges or faces• Use the properties of 2D and 3D shapes to classify 2-D shapes and 3-D solids• Visualise 3-D shapes from 2-D drawings and identify different nets for a closed cube Recognise and build pyramids and prisms, making nets.• Use Venn and Carroll diagrams to show information about shapes• Sort and classify quadrilaterals using criteria such as parallel sides, equal sides, equal angles and lines of symmetry Know the totals of angles inside triangles and quadrilaterals and use to find missing angles. Find that opposite angles are equal; find angles in polygons.• Make and draw shapes with increasing accuracy• Estimate angles and use a protractor to measure these• Draw angles, using a protractor, on their own and in shapes• Calculate angles on a straight line, in a triangle or around a point |
| <ul style="list-style-type: none">• Revise multiplying two-digit numbers by single digit numbers by partitioning, e.g. $47 \times 6 = (40 \times 6) + (7 \times 6)$ Multiply and divide by 10, 100 and 1000.• Use brackets• Revise dividing two-digit numbers by single-digit numbers, including leaving a remainder• Decide whether to group or share (including halving and quartering) to solve division• Give an answer to a division as a mixed number when the divisor is 2, 4, 5, 10 or 100, e.g. $39 \div 4 = 9\frac{3}{4}$• Double quickly any two-digit number e.g. 78, 7.8, 0.78, and derive the corresponding halves• Double multiples of 10 to 1000, e.g. double 360, and derive the corresponding halves |
| <ul style="list-style-type: none">• Multiply pairs of multiples of 10, e.g. 30×40, or of 10 and 100, e.g. 600×40• Approximate first before calculating• Revise using the grid method to multiply three-digit numbers by single digit numbers and to multiply two-digit numbers by two-digit numbers• Use the grid method to multiply four-digit numbers by single-digit numbers Use grid multiplication to multiply 3-digit numbers by 2-digit numbers. Use long multiplication to multiply 3-digit numbers by numbers between 20 and 30.• Revise using chunking on the ENL to divide three-digit numbers by single digit numbers, including those leaving a remainder• Decide whether to round up or down after division• Use short division to divide 3 and 4-digit numbers by 1-digit numbers and by 11 and 12, and with fraction parts of answers, e.g. $23\frac{3}{4}$. |
| <ul style="list-style-type: none">• Revise finding fractions of shapes• Change an improper fraction to a mixed number, e.g. $\frac{33}{8}$ to $4\frac{1}{8}$• Recognise equivalence between fractions e.g. between $\frac{1}{16}$s, $\frac{1}{8}$s, $\frac{1}{4}$s and $\frac{1}{2}$s; and between $\frac{1}{100}$s, $\frac{1}{10}$s and $\frac{1}{2}$s Recognise fraction and decimal equivalents.• Reduce a fraction to its simplest form Find common multiples and factors. Find numbers which have a pair of prime factors. Compare and order fractions with unrelated denominators.• Relate finding fractions to division and use them as operators to find fractions including several tenths and hundredths of quantities Find unit and non-unit fractions of amounts. Add and subtract fractions with unrelated denominators. |

- Understand percentage as the number of parts in every 100, and express halves, quarters, tenths and hundredths as percentages
 - Find simple percentages of whole number quantities e.g. 10%, 20%, 40% and 80 % by doubling, and 25% by finding a quarter
 - Revise using ratio and proportion to describe the relationship between quantities, e.g. 3 red beads for every 2 blue beads, 3 out of every 5 beads are red
 - Solve simple problems involving direct proportion by scaling quantities up or down
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- Explain methods and reasoning orally
 - Make general statements about odd and even numbers including their products
 - Recognise and extend number sequences
 - Revise finding factors of two-digit numbers
 - Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask
 - Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs
 - Interpret pie charts
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- Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask
 - Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs
 - Interpret pie charts
 - Add or subtract mentally a near multiple of 10, 100 or 1000, or a near multiple of £1 and adjust, e.g. $3127 + 4998$, $5678 - 1996$. $£5.00 \pm £2.99$
 - Use strategies for adding or subtracting two-digit whole numbers, and place value to add or subtract three-digit multiples of 10 and pairs of decimals Place value in 6-digit numbers (PV additions/subtractions) Place on number line and round to nearest 10, 100, 1000, 10,000 or 100,000. Add and subtract 1s, 10s, 100s, 1000s, 10,000s and 100,000s
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- Add or subtract mentally a near multiple of 10, 100 or 1000, or a near multiple of £1 and adjust, e.g. $3127 + 4998$, $5678 - 1996$. $£5.00 \pm £2.99$
 - Use strategies for adding or subtracting two-digit whole numbers, and place value to add or subtract three-digit multiples of 10 and pairs of decimals Add 2 or 3 numbers with two decimal places in a measures context, e.g. metres; Subtract numbers with one or two decimal places by counting up from the smaller to the larger number (Frog), e.g. $2.76 - 0.83$ or $13.4 - 2.76$.
 - Approximate first before calculating
 - Revise using vertical addition to add pairs of four-digit numbers
 - Revise adding two numbers with the same number of decimal places using vertical addition, including amounts of money, e.g. $£35.75 + £26.78$ Add 2 or 3 amounts of money using column addition. Using column addition to add pairs of 5-digit numbers with 5-digit and 6-digit answers.
 - Revise subtracting four digit numbers by counting up, e.g. $5431 - 2789$
 - Subtract four digit numbers using decomposition using column subtraction (decomposition) to subtract pairs of 5-digit numbers and to subtract 3-digit numbers and 4-digit numbers from 5-digit numbers.
 - Subtract numbers with the same number of decimal places by counting up, including amounts of money, e.g. $25.3 - 15.7$, $5.24 - 2.76$, $£50.00 - £26.78$ Add several prices, then use frog to find change from £20, £50 and £100.
 - Choose an efficient method to subtract by choosing for a variety of calculations such as $5412 - 3006$, $1524 - 320$ or $1524 - 978$
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- Choose an efficient method to subtract by choosing for a variety of calculations such as $5412 - 3006$, $1524 - 320$ or $1524 - 978$
 - Choose mental, written or calculator methods to work out addition and subtraction calculations
 - Approximate first before calculating
 - Select the correct sequence to carry out calculations needing more than one step
 - Recognise a negative answer
 - Know how to clear a calculation and how to clear the last entry
 - Use the decimal point
 - Enter and interpret money calculations
 - Check with a different order (e.g. when adding a long list of numbers) or by using the inverse
 - Choose mental, written or calculator methods to work out addition
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- Use all four operations to solve single- and multi-step word problems
 - Use brackets
 - Decide whether to round up or down after division
 - Solve mathematical puzzles
 - Use ordered lists/systematic working to find all possibilities
 - Solve logic problems
 - using short multiplication to multiply 4-digit numbers by single-digit numbers including money; Round to approximate answers.

Year 6 Maths Overview

(supported by Hamilton Trust materials as appropriate)

Spring Term

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| <ul style="list-style-type: none">• Multiply and divide any number from 1 to 10000 by 10, 100 or 1000 and understand the effect• Multiply and divide decimals by 10 or 100 (answers up to two places for division)• Understand the effect of multiplying or dividing by 10, 100 or 1000• Round whole numbers to the nearest 10, 100 or 1000 Place 6-digit numbers on number lines and round to the nearest 100 or 1000.• Estimate where four-digit numbers lie on an empty 0-10 000 line Add and subtract 1, 10, 100, 1000, 10,000 and 100,000 to/from six-digit numbers• Count on and back in repeated steps, including through zero• Find the difference between a positive and a negative integer, and between two negative integers in a context such as temperature or on the number line• Order a set of positive and negative integers |
| <ul style="list-style-type: none">• Select and use standard units of measure, reading and writing these to two places of decimals• Convert between units of measurement, using decimals to two places• Read and interpret scales on a range of measuring instruments; comparing readings on different scales• Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs• Interpret pie charts• Describe and interpret results and solutions to problems using the mode, range, median and mean• Convert between metres and kilometres; know approximate conversion between miles and km; draw line graph and read intermediate points.• Know regularly used imperial units and approximate metric equivalents.• Draw a conversion graph of imperial to metric units and use it to read off equivalent measures. |
| <ul style="list-style-type: none">• Recognise multiples of 2 to 10 up to the 10th multiple• Use place value to add and subtract; add and subtract near multiples of 100 and 1000• Find common multiples• Know and apply tests of divisibility by 2, 3, 4, 5, 6, 9, 10, 25, 100 and 1000 Use mental strategies to divide by 5, 20, 6, 4 and 8• Recognise prime numbers up to 20• Find all prime numbers less than 100• Use knowledge of place value and multiplication facts to work out multiplication and division involving decimals (e.g. 0.8×7, $4.8 \div 6$): Use short multiplication to multiply 4-digit numbers by 1-digit numbers;• Multiply two-digit numbers by single digit numbers by partitioning, e.g. $4.7 \times 6 = (4 \times 6) + (0.7 \times 6)$• Use brackets• Multiply by near multiples of ten by multiplying by the nearest multiple of ten and adjusting e.g. multiply by 19 or 21 by multiplying by 20 and adjusting |
| <ul style="list-style-type: none">• Revise using knowledge of place value and multiplication facts to multiply and divide decimals mentally, e.g. 0.8×7, $4.8 \div 6$• Approximate first before calculating• Use the grid method to multiply three-digit numbers by two-digit numbers• Use the grid method to multiply a sum of money by a single digit number, e.g. $\pounds 12.45 \times 3$• Use chunking on the ENL to divide three-digit numbers by two-digit numbers (no remainder)• Decide whether to round up or down after division• Choose mental, written or calculator methods to multiply or divide numbers• Use short division to divide three-digit numbers by single-digit numbers; divide any remainders to give fractions |
| <ul style="list-style-type: none">• Compare fractions such as $\frac{2}{3}$, $\frac{3}{4}$ and $\frac{5}{6}$ by converting them to fractions with the same denominator• Multiply unit and non-unit fractions by whole numbers• Key in fractions on a calculator, e.g. halves, quarters, fifths tenths, hundredths, recognise the equivalent decimal form and use this to compare fractions, e.g. comparing $\frac{75}{100}$, 0.72 and $\frac{1}{5}$• Solve problems involving percentages, e.g. find discounted prices• Express one quantity as a percentage of another (e.g. express $\pounds 400$ as a percentage of $\pounds 1000$) Know equivalence between percentages and fractions• Use ratio and proportion to solve simple problems, e.g. there are 30 children; there are 3 boys for every 2 girls, how many boys are there? |
| <ul style="list-style-type: none">• Read and plot co-ordinates in the first quadrant Plot points and draw polygons in two quadrants.• Use co-ordinates in the first quadrant to draw, locate and complete shapes that meet given properties• Visualise and draw on grids of different types where a shape will be after reflection, after translation, or after rotation through 90 or 180 degrees about its centre or about one of its vertices Work out new co-ordinates after a translation. |

<ul style="list-style-type: none"> • Make general statements about patterns and relationships • Describe a relationship in words, and then express it in a formula using letters as symbols, e.g. stamps cost 32p each, so n stamps cost 32n • Substitute numbers for letters in simple formulae • Describe and predict outcomes from data using the language of chance and likelihood
<ul style="list-style-type: none"> • Derive quickly pairs of decimals with a total of 10 e.g. 7.8 and 2.2 and with a total of 1, e.g. 0.78 + 0.22 • Use strategies used to add/subtract pairs of whole two-digit numbers to add/subtract two-digit numbers with one decimal place Use frog to find change from £100; use column addition to add amounts. Use Frog (counting on) to find the difference between amounts of money. • Add/subtract near multiples of one, e.g. 5.6 + 2.9, 13.5 – 2.1 • Approximate first before calculating • Round decimals to the nearest whole and tenth. • Use vertical addition to add several whole numbers with different numbers of digits • Use vertical addition to add two numbers with different numbers of decimal places
<ul style="list-style-type: none"> • Approximate first before calculating • Use vertical addition to add several whole numbers with different numbers of digits • Use vertical addition to add two numbers with different numbers of decimal places • Find a difference between decimals with two decimal places by counting up, e.g. 3.24 – 2.96 • Find a difference between two numbers with different numbers of decimal places by counting up, e.g. 5.24 – 3.7, 9.4 – 5.78 • Choose mental, written or calculator methods to work out addition and subtraction calculations • Use decomposition to subtract pairs of five-digit numbers and four-digit numbers from five-digit numbers • Approximate first before calculating • Interpret a rounding error, e.g. 6.9999999 as 7 • Read recurring displays e.g. 0.3333333 and know that it represents a third • Interpret a decimal answer and decide how to present it, e.g. rounding 3.14258 to 3.14 to give an answer in pounds and pence or metres and centimetres • Decide whether to round a decimal answer up or down after division, depending on the context
<ul style="list-style-type: none"> • Approximate first before calculating • Compare 6-digit numbers and round to the nearest 10, 100, 1000, 10,000 and 100,000 • Interpret a rounding error, e.g. 6.9999999 as 7 • Read recurring displays e.g. 0.3333333 and know that it represents a third • Interpret a decimal answer and decide how to present it, e.g. rounding 3.14258 to 3.14 to give an answer in pounds and pence or metres and centimetres • Decide whether to round a decimal answer up or down after division, depending on the context • Choose mental, written or calculator methods to multiply or divide numbers <ul style="list-style-type: none"> • Tell the time using digital and analogue clocks using the 24-hour clock • Read and use timetables using the 24-hour clock • Use a calendar to calculate time intervals • Calculate time intervals using digital and analogue times • Calculate time intervals in months or years • Calculate time intervals using the 24-hour clock and add lengths of time. Read timetables using the 24-hour clock; calculate time intervals (at least 3 hours).
<ul style="list-style-type: none"> • Use all four operations to solve multi-step word problems • Use brackets • Recognise and extend numbers sequences or patterns and use this to solve problems • Describe a relationship in words, and then express it in a formula using letters as symbols

Year 6 Maths Overview

(supported by Hamilton Trust materials as appropriate)

Summer Term

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| <ul style="list-style-type: none">• Compare fractions such as $\frac{2}{3}$, $\frac{3}{4}$ and $\frac{5}{6}$ by converting them to fractions with the same denominator• Order numbers with up to three decimal places (including different numbers of places) and place them on a number line Place 6-digit numbers on landmarked lines and empty lines and round 6-digit numbers to the nearest 1000, 10,000, and 100,000• Begin to recognise and use decimals with three places• Recognise years written in Roman numerals• Find the difference between a positive and a negative integer, and between two negative integers in a context such as temperature or on the number line• Order a set of positive and negative integers• Compare numbers up to 1 million, find a number in-between, use $<$ and $>$ signs• Recognise multiples of 2 to 10 up to the 10th multiples• Find common multiples• Find factors of two-digit numbers and common factors Revise adding and subtracting fractions with related denominators and unrelated denominators• Read and interpret scales on a range of measuring instruments; comparing readings on different scales• Tell the time using digital and analogue clocks using the 24-hour clock• Read and use timetables using the 24-hour clock |
| <ul style="list-style-type: none">• Add two or more two-, three- or four-digit numbers including decimals using mental or written methods• Add and subtract 1, 10, 100, 1000, 10,000 and 100,000 to/from six-digit numbers• Subtract pairs of two-, three- or four-digit numbers including decimals using mental or written methods• Choose mental or written methods to work out addition and subtraction calculations• Choose counting up (Frog), counting back or column subtraction for 5 digit numbers• Visualise and draw on grids of different types where a shape will be after reflection, after translation, or after rotation through 90 or 180 degrees about its centre or about one of its vertices• Describe, identify and visualise parallel and perpendicular edges or faces• Use the properties of 2D and 3d shapes to classify 2D shapes and 3D solids• Estimate angles and use a protractor to measure these• Draw angles, using a protractor, on their own and in shapes• Calculate angles in a triangle or around a point |
| <ul style="list-style-type: none">• Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask• Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs• Interpret pie charts• Multiply three- and two-digit numbers by two- and single-digit numbers including decimals using mental, written methods• Multiply and divide by 10, 100, 1000• Recognise and use square numbers and cube numbers• Divide three- and two-digit numbers by two- and single-digit numbers including decimals using mental or written methods.• Use short division to divide 4-digit numbers by single-digit numbers, expressing the remainders as fraction.• Choose mental or written methods to multiply or divide numbers• Solve word problems involving all four operations |

SATS WEEK

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| <ul style="list-style-type: none">• Find a difference between two numbers with different numbers of decimal places, e.g. $55.24 - 23.7$, $39.4 - 15.78$• Use vertical addition to add three numbers with different numbers of digits or decimals with one or two places• Make and justify estimates and approximations of large numbers e.g. how many pennies might be in a line 1km long• Explain methods and reasoning orally• Recognise squares of all numbers to at least 12×12• Square multiples of ten, e.g. 50×50 <p>Find factors of two-digit numbers</p> |
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- Use factors to multiply e.g. multiply by 8 by multiplying by 4 then doubling
- Use number facts to generate new multiplication facts, e.g. develop the 24× table by multiplying the 6× table by 4
- Develop the 17 × table by adding the 10 and 7 × tables
- Multiply by halving one number and doubling the other, e.g. calculate 35×16 , by calculating 70×8
- Approximate first before calculating
- Revise using knowledge of place value and multiplication facts to multiply and divide appropriate calculations
- Multiply by near multiples of ten by multiplying by the nearest multiple of ten and adjusting, e.g. multiply by 19 or 21 by multiplying by 20 and adjusting
- Use the grid method to multiply three-digit numbers including numbers with one or two decimal places, by single digit numbers, e.g. 4.92×3
- Give an answer to a division as a mixed number, e.g. $90 \div 7 = 12 \frac{6}{7}$
- Give an answer to a division as a decimal fraction where the divisor is 2, 4, 5, 10 or 100, e.g. $61 \div 4 = 15.25$
- Use chunking to divide a three-digit sum of money in pounds by a one- or two-digit number, first converting the pounds to pence, e.g. $\text{£}6.00 \div 24$ is $600\text{p} \div 24$ or $\text{£}1.26 \div 7$ is $126 \div 7$

- Use and compare decimal numbers with more than two decimal places in the context of measures
- Make and justify estimates and approximations of large numbers
- Explain methods and reasoning orally
- Make general statements about patterns and relationships
- Begin to find the mean of a set of data
- Construct and interpret line graphs

- Make and justify estimates and approximations of large numbers
- Explain methods and reasoning orally
- Make general statements about patterns and relationships
- Solve mathematical puzzles

- Make general statements about patterns and relationships
- Approximate first when calculating
- Recognise and extend number sequences such as the sequence of square or triangular numbers
- Describe a relationship in words, and then express it in a formula using letters as symbols
- Draw lines to nearest centimetre and millimetre

- Tessellate 2D shapes
- Visualise and draw on grids of different types where a shape will be after reflection, after translation, or after rotation through 90° or 180° about its centre or one of its vertices
- Make general statements about patterns and relationships
- Express a larger whole number as a fraction of a smaller one