Time
Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening.
Recognise and use language relating to dates, including days of the week, weeks, months and years.
Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.
Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later]
Measure and begin to record time (hours, minutes, seconds)

Measurement: Money
Recognise and know the value of different denominations of coins and notes.

Number: Place Value within 100
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

Number: Fractions
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.
Compare, describe and solve practical problems for: 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]
Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)

Geometry: position and direction
describe position, direction and movement, including whole, half, quarter and three-quarter turns

Number: Multiplication and division
Count in multiples of twos, fives and tens.
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.

Measurement: Weight and Volume
Measurement: Weight and Volume Measure and begin to record mass/weight, capacity and volume.
Compare, describe and solve practical problems for 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]

Measures: length and height
Measurement: Length and Height
Measure and begin to record lengths and heights.
Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)

Number: Addition and Subtraction within 20]
Represent and use number bonds and related subtraction facts within 20
Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.
Add and subtract one-digit and two digit numbers to 20, including zero.
Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7= □ −9

Number: Place Value within 50
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

Number: Place Value (within 20)
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-20)
Given a number, identify one more and less

Number: Place Value within 10
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-10)
Given a number, identify one more and less

Geometry: Shape
recognise and name common 2-D and 3-D shapes, including:
2-D shapes [for example, rectangles (including squares), circles and triangles]
recognise and name common 2-D and 3-D shapes, including:
3-D shapes [for example, cuboids (including cubes), pyramids and spheres]

Number: Addition and Subtraction within 10
Represent and use number bonds and related subtraction facts within 10
Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.
Add and subtract one digit numbers to 10, including zero.
Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems.

EYFS

Mathematics EYFS Learning Journey

Time
Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening.
Recognise and use language relating to dates, including days of the week, weeks, months and years.
Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.
Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later]
Measure and begin to record time (hours, minutes, seconds)

Measurement: Money
Recognise and know the value of different denominations of coins and notes.

Number: Place Value within 100
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

Number: Fractions
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.
Compare, describe and solve practical problems for: 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]
Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)

Geometry: position and direction
describe position, direction and movement, including whole, half, quarter and three-quarter turns

Number: Multiplication and division
Count in multiples of twos, fives and tens.
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.

Measurement: Weight and Volume
Measurement: Weight and Volume Measure and begin to record mass/weight, capacity and volume.
Compare, describe and solve practical problems for 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]

Measures: length and height
Measurement: Length and Height
Measure and begin to record lengths and heights.
Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)

Number: Addition and Subtraction within 20]
Represent and use number bonds and related subtraction facts within 20
Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.
Add and subtract one-digit and two digit numbers to 20, including zero.
Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7= □ −9

Number: Place Value within 50
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

Number: Place Value (within 20)
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-20)
Given a number, identify one more and less

Number: Place Value within 10
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-10)
Given a number, identify one more and less

Geometry: Shape
recognise and name common 2-D and 3-D shapes, including:
2-D shapes [for example, rectangles (including squares), circles and triangles]
recognise and name common 2-D and 3-D shapes, including:
3-D shapes [for example, cuboids (including cubes), pyramids and spheres]

Number: Addition and Subtraction within 10
Represent and use number bonds and related subtraction facts within 10
Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.
Add and subtract one digit numbers to 10, including zero.
Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems.

YEAR 1

Mathematics Year 1 Learning Journey

Mathematics Year 2 Learning Journey

Measurement: Mass, Capacity and temperature
Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
Compare and order lengths, mass, volume/capacity and record the results using >, < and =

Measurement: time
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.

Geometry: position and direction
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 anti-clockwise)

Measurement: length and height
Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
Compare and order lengths, mass, volume/capacity and record the results using >, < and =

Number: fractions
Recognise, find, name and write fractions $1/2$, $1/3$, $1/4$, $2/4$, and $3/4$ of a length, shape, set of objects or quantity.
Write simple fractions for example, $1/2$ of $6 = 3$ and recognise the equivalence of $2/4$ and $1/2$

Geometry: Properties of Shape
identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line
identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
compare and sort common 2-D and 3-D shapes and everyday objects
identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
compare and sort common 2-D and 3-D shapes and everyday objects

Statistics
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.

Measurement: Money
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.

Number: multiplication and division
Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers.
Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.
Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.
Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.

Number: Addition and Subtraction
Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.
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.
Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.
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
Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Number: Place Value
Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
Read and write numbers to at least 100 in numerals and in words.
Identify, represent and estimate numbers using different representations including the number line.
Recognise the place value of each digit in a two digit number (tens, ones)
Compare and order numbers from 0 up to 100; use <, > and = signs
Use place value and number facts to solve problems

YEAR 2

HARBINGER PRIMARY SCHOOL

Measurement: mass and capacity
Measure, compare, add and subtract:
lengths (m/cm/mm); mass (kg/g);
volume/capacity (l/ml)

Geometry: properties of shapes
draw 2-D shapes
make 3-D shapes using modelling materials; recognise 3-D shapes
in different orientations and describe them
recognise angles as a property of shape or a description of a
turn
identify right angles, recognise that 2 right angles make a half-
turn, 3 make three-quarters of a turn and 4 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

Measurement: time
Tell and write the time from an analogue clock, including using
Roman numerals from I to XII and 12-hour and 24-hour clocks.
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].

Number: fractions
Recognise and show, using diagrams, equivalent
fractions with small denominators.
Compare and order unit fractions, and fractions
with the same denominators.
Add and subtract fractions with the same
denominator within one whole, for example,
$5/7 + 1/7 = 6/7$
Solve problems that involve all of the above.

Number: fractions
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 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
Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
Compare and order fractions, including fractions >1
Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example,
$1/4 \times 1/2 = 1/8$
Divide proper fractions by whole numbers [for example, $+ 1/3 \div 2 = 1/6$]
Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction
[for example, 3/8]
Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and
1,000 giving answers up to 3 decimal places

Statistics
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.

Measurement: length and perimeter
Measure, compare, add and subtract: lengths
(m/cm/mm); mass (kg/g); volume/capacity (l/ml).
Measure the perimeter of simple 2D shapes.

Measurement: Money
Add and subtract
amounts of money to
give change, using both
£ and p in practical
contexts.

Number: multiplication and division
Count from 0 in multiples of 4, 8, 50 and 100 Recall and use multiplication
and division facts for the 3, 4 and 8 multiplication tables.
Write and calculate mathematical statements for multiplication and division
using the multiplication tables 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 objectives.

Number: multiplication and division
Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
Write and calculate mathematical statements for multiplication and division using the
multiplication tables 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 objectives.

Number: Addition and Subtraction
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.

YEAR
3

**Mathematics Year 3
Learning Journey**

Number: Place Value
Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Identify, represent and estimate
numbers using different representations.
Find 10 or 100 more or less than a given number
Read and write numbers up to 1000 in numerals and in words.
Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
Compare and order numbers up to 1000
Solve number problems and practical problems involving these ideas.

Mathematics Year 4 Learning Journey

YEAR 4

Geometry: position and direction
describe positions on a 2-D grid as coordinates in the first quadrant
describe movements between positions as translations of a given unit to the left/right and up/down
plot specified points and draw sides to complete a given polygon

Geometry: properties of shape
compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
identify lines of symmetry in 2-D shapes presented in different orientations
identify acute and obtuse angles and compare and order angles up to 2 right angles by size
complete a simple symmetric figure with respect to a specific line of symmetry

Statistics
Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

Time
Read, write and convert time between analogue and digital 12-and 24-hour clocks.
Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

Fractions
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.
Add and subtract fractions with the same denominator.
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.

Decimals
Recognise and write decimal equivalents of any number of tenths or hundredths.
Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths
Convert between different units of measure [for example, kilometre to metre]
Solve simple measure and money problems involving fractions and decimals to two decimal places

Measurement: Money
Estimate, compare and calculate different measures, including money in pounds and pence.
Solve simple measure and money problems involving fractions and decimals to two decimal places.

Decimals
Recognise and write decimal equivalents to $1/4$, $1/2$, $3/4$
Compare numbers with the same number of decimal places up to two decimal places.
Round decimals with one decimal place to the nearest whole number.
Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths

Measurement: area
Find the area of rectilinear shapes by counting squares.

Number: Multiplication and division
Recall and use multiplication and division facts for multiplication tables up to 12 × 12.
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.
Recognise and use factor pairs and commutativity in mental calculations.
Multiply two digit and three digit numbers by a one digit number using formal written layout.
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.

Measurement: length & perimeter
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]

Number: multiplication and division
Recall and use multiplication and division facts for multiplication tables up to 12 × 12.
Count in multiples of 6, 7, 9. 25 and 1000
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.
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.

Number: Place Value
Count in multiples of 6, 7, 9. 25 and 1000.
Count backwards through zero to include negative numbers.
Identify, represent and estimate numbers using different representations.
Round any number to the nearest 10, 100 or 1000
Solve number and practical problems that involve all of the above and with increasingly large positive numbers.
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

Number: Addition and Subtraction
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.

Measures: Volume
Estimate volume [for example using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]
Use all four operations to solve problems involving measure.

Measurement: Converting units
Convert between different units of metric measure (for example kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre
understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
solve problems involving converting between units of time
use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling

Geometry: Position and direction
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

Geometry: Properties of Shapes
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
know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
draw given angles, and measure them in degrees (°)
identify: angles at a point and 1 whole turn (total 360°); angles at a point on a straight line and half a turn (total 180°); other multiples of 90°

Number: fractions
Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths.
Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number, for example   2/5 + 4/5 = 6/5 = 1 1/5
Read and write decimal numbers as fractions, for example 0.71 = 71/100
Compare and order fractions whose denominators are multiples of the same number.
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.

Number: Decimals
Solve problems involving number up to three decimal places.
Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

Number: Decimals and percentages
Read, write, order and compare numbers with up to three decimal places.
Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
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.
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.
Solve problems involving number up to three decimal places.
Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.

Number: Multiplication and division
Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers
Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
Establish whether a number up to 100 is prime and recall prime numbers up to 19
Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)
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 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 & interpret remainders appropriately for the context
Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000
Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes
Solve problems involving addition, subtraction, multiplication & division & a combination of these, including understanding the meaning of the = sign
solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
Use their knowledge of the order of operations to carry out calculations involving the four operations.

Perimeter and area
Calculate the perimeter of rectilinear shapes from diagrams without grids.
Apply knowledge of missing numbers to work out dimensions by finding the difference.

Statistics
Solve comparison, sum and difference problems using information presented in a line graph.
Complete, read and interpret information in tables including timetables.

Number: Place Value
Count forwards or backwards in steps of powers of 10 for any given number up to 1000000.
Count forwards and backwards with positive and negative whole numbers including through zero.
Read, write, order and compare numbers to at least 1000000 and determine the value of each digit.
Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.
Read, write, order and compare numbers to at least 1000000 and determine the value of each digit.
Interpret negative numbers in context,
Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000
Solve number problems and practical problems that involve all of the above.

YEAR 5

Mathematics Year 5 Learning Journey

Number: Addition and subtraction
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.

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Geometry: Properties of Shapes
draw 2-D shapes using given dimensions and angles
compare and classify geometric shapes based on their properties and sizes
illustrate and name parts of circles, including radius, diameter and
circumference and know that the diameter is twice the radius
recognise, describe and build simple 3-D shapes, including making nets
find unknown angles in any triangles, quadrilaterals, and regular polygons
recognise angles where they meet at a point, are on a straight line, or are
vertically opposite, and find missing angles

Statistics
Illustrate and name parts of circles, including
radius, diameter and circumference and know
that the diameter is twice the radius.
Interpret and construct pie charts and line graphs
and use these to solve problems.
Calculate the mean as an average.

Number: ratio
Solve problems involving the
relative sizes of two quantities
where missing values can be
found by using integer
multiplication and division facts.
Solve problems involving similar
shapes where the scale factor is
known or can be found.
Solve problems involving unequal
sharing and grouping using
knowledge of fractions and
multiples.

Measurement: converting units
Recognise that shapes with the same areas can have different perimeters and vice versa.
Recognise when it is possible to use formulae for area and volume of shapes.
Calculate the area of parallelograms and triangles.
Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm3,
m3 and extending to other units (mm3, km3)

Measurement: Perimeter, area and volume
Recognise that shapes with the same areas can have
different perimeters and vice versa.
Recognise when it is possible to use formulae for
area and volume of shapes.
Calculate the area of parallelograms and triangles.
Calculate, estimate and compare volume of cubes
and cuboids using standard units, including cm3, m3
and extending to other units (mm3, km3)

Number: Algebra
Use their knowledge of the order of operations to carry out calculations involving the 4 operations
Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and
why. Solve problems involving addition, subtraction, multiplication and division
Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer
multiplication and division facts
Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the
use of percentages for comparison
Solve problems involving similar shapes where the scale factor is known or can be found use simple formulae
Generate and describe linear number sequences.
Express missing number problems algebraically.
Find pairs of numbers that satisfy an equation with 2 unknowns.
enumerate possibilities of combinations of 2 variables
Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal
places where appropriate
Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from
a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places
Convert between miles and kilometres
Recognise when it is possible to use formulae for area and volume of shapes. Calculate the area of parallelograms
and triangles

Number: Percentages
Solve problems involving the calculation
of percentages [for example, of
measures and such as 15% of 360]
and the use of percentages for
comparison.
Recall and use equivalences between
simple fractions, decimals and
percentages including in different
contexts.

Number: Decimals
Identify the value of each digit in
numbers given to 3 decimal places
and multiply numbers by 10, 100
and 1,000 giving answers up to 3
decimal places.
Solve problems which require
answers to be rounded to
specified degrees of accuracy.
Multiply one-digit numbers with up
to 2 decimal places by whole
numbers.
Use written division methods in
cases where the answer has up to
2 decimal places.
Solve problems which require
answers to be rounded to
specified degrees of accuracy.

Number: Fractions
Use common factors to simplify fractions
Use common multiples to express
fractions in the same denominations
Compare and order fractions, including
fractions >1
Add and subtract fractions with different
denominations and mixed numbers, using the concept of equivalent fractions
Multiply simple pairs of proper fractions,
writing the answer in its simplest form [for example, $1/4 \times 1/2 = 1/8$
Divide proper fractions by whole numbers [for example $1/3 \div 2 = 1/6$]

Geometry: Position and direction
describe positions on the full coordinate grid (all
4 quadrants)
draw and translate simple shapes on the
coordinate plane, and reflect them in the axes

Number: Addition, Subtraction, Multiplication and Division
Perform mental calculations, including with mixed operations and large numbers.
Identify common factors, common multiples and prime numbers.
Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication.
Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of long division, and interpret remainders as whole number
remainders, fractions, or by rounding as appropriate for the context.
Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to the context.
Solve problems involving addition, subtraction, multiplication and division.
Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy.
Use their knowledge of the order of operations to carry out calculations involving the four operations.

YEAR 6

Number: Place Value
Read, write, (order and compare) numbers up to 10,000,000 and determine the value of each digit.
Read, write), order and compare numbers up to 10,000,000 and determine the value of each digit.
Round any whole number to a required degree of accuracy.
Use negative numbers in context, and calculate intervals across zero.
Solve number and practical problems that involve all of the above.
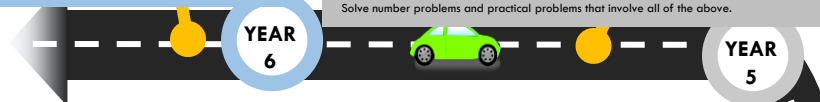
**Mathematics Year 6
Learning Journey**

HARBINGER PRIMARY SCHOOL

Specific strands

Place Value

Mathematics Learning Journey

YEAR 6

Number: Place Value
Read, write, (order and compare) numbers up to 10,000,000 and determine the value of each digit.
Read, write), order and compare numbers up to 10,000,000 and determine the value of each digit.
Round any whole number to a required degree of accuracy.
Use negative numbers in context, and calculate intervals across zero.
Solve number and practical problems that involve all of the above.

YEAR 5

Number: Place Value
Count forwards or backwards in steps of powers of 10 for any given number up to 1000000.
Count forwards and backwards with positive and negative whole numbers including through zero.
Read, write, order and compare numbers to at least 1000000 and determine the value of each digit.
Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.
Read, write, order and compare numbers to at least 1000000 and determine the value of each digit.
Interpret negative numbers in context,
Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000
Solve number problems and practical problems that involve all of the above.

4

Number: Place Value
Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Identify, represent and estimate numbers using different representations.
Find 10 or 100 more or less than a given number
Read and write numbers up to 1000 in numerals and in words.
Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
Compare and order numbers up to 1000
Solve number problems and practical problems involving these ideas.

Number: Place Value
Count in multiples of 6, 7, 9. 25 and 1000.
Count backwards through zero to include negative numbers.
Identify, represent and estimate numbers using different representations.
Round any number to the nearest 10, 100 or 1000
Solve number and practical problems that involve all of the above and with increasingly large positive numbers.
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

YYEAR REAR 3

Number: Place Value
Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
Read and write numbers to at least 100 in numerals and in words.
Identify, represent and estimate numbers using different representations including the number line.
Recognise the place value of each digit in a two digit number (tens, ones)
Compare and order numbers from 0 up to 100; use <, > and = signs
Use place value and number facts to solve problems

YEAR 2

Number: Place Value within 100
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

Number: Place Value within 10
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-10)
Given a number, identify one more and less

Number: Place Value (within 20)
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-20)
Given a number, identify one more and less

Number: Place Value within 50
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

YEAR 1

Number: Place Value within 50
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

Number: Place Value within 10
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-10)
Given a number, identify one more and less

Number: Place Value within 100
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

EYFS

Number: Place Value (within 20)
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-20)
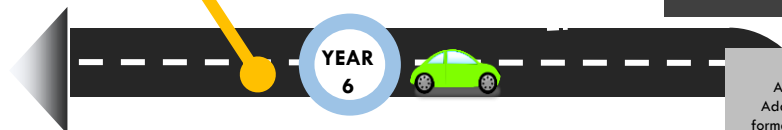Given a number, identify one more and less

HARBINGER PRIMARY SCHOOL

Number: Addition, Subtraction,
Perform mental calculations, including with mixed operations and large numbers.
Use their knowledge of the order of operations to carry out calculations involving the four operations.

YEAR 6

Number: Addition and subtraction
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.

Number: Addition and Subtraction
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.

YEAR 5

YEAR 4

Number: Addition and Subtraction
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.

Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.
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.
Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.
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
Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

YEAR 3

Number: Addition and Subtraction within 20]
Represent and use number bonds and related subtraction facts within 20
Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.
Add and subtract one-digit and two digit numbers to 20, including zero.
Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7= □ −9

YEAR 2

YEAR 1

Number: Place Value within 50
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

Number: Place Value within 10
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-10)
Given a number, identify one more and less

Number: Place Value within 100
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)
Given a number, identify one more and less

Number: Place Value (within 20)
Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
Count numbers to 100 in numerals; count in multiples of twos, fives and tens
Identify and represent numbers using objects and pictorial representations
Read and write numbers to 100 in numerals
Read and write numbers from 1 to 20 in numerals and words (Focus 1-20)
Given a number, identify one more and less

EYFS

Mathematics Learning Journey

Number, Multiplication and Division

Identify common factors, common multiples and prime numbers.

Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication.

Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding as appropriate for the context.

Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to the context.

Perform mental calculations involving addition, subtraction, multiplication and division. Including mixed operations

Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy.

Use their knowledge of the order of operations to carry out calculations involving the four operations.

YEAR 6

Number: Multiplication and division

Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers

Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers

Establish whether a number up to 100 is prime and recall prime numbers up to 19

Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})

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 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 & interpret remainders appropriately for the context

Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000

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

Solve problems involving addition, subtraction, multiplication & division & a combination of these, including understanding the meaning of the = sign

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

Use their knowledge of the order of operations to carry out calculations involving the four operations.

Number: Multiplication and division

Recall and use multiplication and division facts for multiplication tables up to 12 × 12.

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.

Recognise and use factor pairs and commutativity in mental calculations.

Multiply two digit and three digit numbers by a one digit number using formal written layout.

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.

YEAR 5

Number: multiplication and division

Recall and use multiplication and division facts for multiplication tables up to 12 × 12.

Count in multiples of 6, 7, 9. 25 and 1000

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.

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.

YEAR 4

Number: multiplication and division

Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.

Write and calculate mathematical statements for multiplication and division using the multiplication tables 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 objectives.

Number: multiplication and division

Count from 0 in multiples of 4, 8, 50 and 100 Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.

Write and calculate mathematical statements for multiplication and division using the multiplication tables 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 objectives.

YEAR 3

Number: multiplication and division

Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers.

Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.

Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.

Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts

YEAR 2

Number: Multiplication and division

Count in multiples of twos, fives and tens.

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.

YEAR 1

Number: Place Value within 50

Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number

Count numbers to 100 in numerals; count in multiples of twos, fives and tens

Identify and represent numbers using objects and pictorial representations

Read and write numbers to 100 in numerals

Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)

Given a number, identify one more and less

Number: Place Value within 10

Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number

Count numbers to 100 in numerals; count in multiples of twos, fives and tens

Identify and represent numbers using objects and pictorial representations

Read and write numbers to 100 in numerals

Read and write numbers from 1 to 20 in numerals and words (Focus 1-10)

Given a number, identify one more and less

Number: Place Value within 100

Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number

Count numbers to 100 in numerals; count in multiples of twos, fives and tens

Identify and represent numbers using objects and pictorial representations

Read and write numbers to 100 in numerals

Read and write numbers from 1 to 20 in numerals and words (Focus 1-50)

Given a number, identify one more and less

Number: Place Value (within 20)

Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number

Count numbers to 100 in numerals; count in multiples of twos, fives and tens

Identify and represent numbers using objects and pictorial representations

Read and write numbers to 100 in numerals

Read and write numbers from 1 to 20 in numerals and words (Focus 1-20)

Given a number, identify one more and less

EYFS

Mathematics Learning Journey

Fractions

Mathematics Learning Journey

Number: Fractions
Use common factors to simplify fractions
Use common multiples to express fractions in the same denominations
Compare and order fractions, including fractions >1
Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions
Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $1/4 \times 1/2 = 1/8$
Divide proper fractions by whole numbers [for example $1/3 \div 2 = 1/6$]

YEAR 6

Number: fractions
Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths.
Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number, for example $2/5 + 4/5 = 6/5 = 1 \, 1/5$
Read and write decimal numbers as fractions, for example $0.71 = 71/100$
Compare and order fractions whose denominators are multiples of the same number.
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.

YEAR 5

Fractions
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.
Add and subtract fractions with the same denominator.
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.

YEAR 4

Number: fractions
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 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
Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
Compare and order fractions, including fractions >1
Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $1/4 \times 1/2 = 1/8$
Divide proper fractions by whole numbers [for example, $+ 1/3 \div 2 = 1/6$]
Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $3/8$]
Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places

Number: fractions
Recognise, find, name and write fractions $1/2$, $1/3$, $1/4$, $2/4$, and $3/4$ of a length, shape, set of objects or quantity.
Write simple fractions for example, $1/2$ of $6 = 3$ and recognise the equivalence of $2/4$ and $1/2$

YEAR 3

YEAR 2

Number: Fractions
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.
Compare, describe and solve practical problems for: 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]
Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)

EYFS

YEAR 1

Number: Fractions
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.
Compare, describe and solve practical problems for: 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]
Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)

HARBINGER PRIMARY SCHOOL

Geometry: Properties of Shapes
draw 2-D shapes using given dimensions and angles
compare and classify geometric shapes based on their properties and sizes
illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
recognise, describe and build simple 3-D shapes, including making nets
find unknown angles in any triangles, quadrilaterals, and regular polygons
recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

YEAR 6

Geometry: Position and direction
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

YEAR 5

Geometry: Properties of Shapes
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
know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
draw given angles, and measure them in degrees (°)
identify: angles at a point and 1 whole turn (total 360°); angles at a point on a straight line and half a turn (total 180°); other multiples of 90°

Geometry: properties of shape
compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
identify lines of symmetry in 2-D shapes presented in different orientations
identify acute and obtuse angles and compare and order angles up to 2 right angles by size
complete a simple symmetric figure with respect to a specific line of symmetry

Geometry: position and direction
describe positions on a 2-D grid as coordinates in the first quadrant
describe movements between positions as translations of a given unit to the left/right and up/down
plot specified points and draw sides to complete a given polygon

YEAR 4

Geometry: properties of shapes
draw 2-D shapes
make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
recognise angles as a property of shape or a description of a turn
identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 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

YEAR 3

Geometry: position and direction
describe position, direction and movement, including whole, half, quarter and three-quarter turns

YEAR 1

Geometry: position and direction
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 anti-clockwise)

YEAR 2

Mathematics Learning Journey

EYFS

Geometry: position and direction
describe position, direction and movement, including whole, half, quarter and three-quarter turns

HARBINGER PRIMARY SCHOOL

Measurement

Mathematics Learning Journey

YEAR 6

Measurement: Perimeter, area and volume
Recognise that shapes with the same areas can have different perimeters and vice versa.
Recognise when it is possible to use formulae for area and volume of shapes.
Calculate the area of parallelograms and triangles.
Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm3, m3 and extending to other units (mm3, km3)

Measurement: Perimeter, area and volume
Recognise that shapes with the same areas can have different perimeters and vice versa.
Recognise when it is possible to use formulae for area and volume of shapes.
Calculate the area of parallelograms and triangles.
Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm3, m3 and extending to other units (mm3, km3)

Measures: Volume
Estimate volume [for example using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]
Use all four operations to solve problems involving measure.

YEAR 5

Measurement: area
Find the area of rectilinear shapes by counting squares.

Measurement: Money
Estimate, compare and calculate different measures, including money in pounds and pence.
Solve simple measure and money problems involving fractions and decimals to two decimal places.

Measurement: Converting units
Convert between different units of metric measure (for example kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre
understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
solve problems involving converting between units of time
use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling

YEAR 4

Measurement: time
Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12-hour and 24-hour clocks.
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].

Measurement: mass and capacity
Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

Measurement: Money
Add and subtract amounts of money to give change, using both £ and p in practical contexts.

YEAR 3

Measurement: length and height
Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
Compare and order lengths, mass, volume/capacity and record the results using >, < and =

Measurement: Mass, Capacity and temperature
Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
Compare and order lengths, mass, volume/capacity and record the results using >, < and =

Measurement: time
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.

YEAR 2

Measures: length and height
Measurement: Length and Height
Measure and begin to record lengths and heights.
Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)

Measures: length and height
Measurement: Length and Height
Measure and begin to record lengths and heights.
Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)

Measurement: Weight and Volume
Measurement: Weight and Volume Measure and begin to record mass/weight, capacity and volume.
Compare, describe and solve practical problems for 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]

Measurement: Weight and Volume
Measurement: Weight and Volume Measure and begin to record mass/weight, capacity and volume.
Compare, describe and solve practical problems for 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]

Measurement: Money
Recognise and know the value of different denominations of coins and notes.

YEAR 1

Measurement: Money
Recognise and know the value of different denominations of coins and notes.

EYFS