

Maths

Year 2

Coverage of the Year

Fairisle Infant and Nursery School



Expect Success

Number: Number and place value

Can you say what we will be learning about in our programme of study about number and place value within 100?

- By the end of the year, children should know how to:
- count in steps of 2, 3, 5 and 10 forwards and backwards from any number
 - recognise the place value of each digit in a two-digit number (tens, ones) e.g. in the number 65 the 'tens' digit is worth 60 and 'ones' digit is worth 5
 - use number representations (such as number lines and number squares) to estimate and identify numbers; for example placing numbers on a number line where only the 'tens' numbers are shown
 - place numbers in the correct order from 0 up to 100 and use the 'greater than', 'less than', and 'equals' signs ($<$, $>$ and $=$) to compare numbers
 - read and write numbers to at least 100 in numerals and in words
 - Use correct number formation to write numbers correctly
 - use place value and number facts to solve problems

Vocabulary

place value: the value of all the digits in a number e.g. in the number 82, the digit '8' is worth 80.

more: a greater amount of something

less: a smaller amount of something

equal to: the same amount of something

numeral: written symbols used to represent numbers

compare: to discover the difference and similarities between things or numbers

objects: anything with a fixed shape or form that can be touched or seen

count: to say numbers in order or to add up

sort: to look at particular features in common

multiples: when a number can be exactly divided by another number. e.g. 6 is a multiple of 2

represent: a sign or symbol that means that thing

forward: to count towards the front direction

backwards: to count the opposite way as expected

dienes: wooden or plastic cubes. the rods will represent the tens and the small cube the ones

greater than ($>$) and less than ($<$): symbols used to show the relative size of numbers

partitioning: dividing the number into the value of the digits e.g. into tens or ones



Number: Addition and Subtraction

Can you say what we will be learning about in our programme of study about number when we look at addition or subtraction?

By the end of the year, children should know how to:

- recall addition and subtraction facts to 20 easily, use this recall to help them work out facts to 100 e.g. $12+8=20$, $22+8=30$, $72+28=100$
- solve addition and subtraction calculations mentally or at times using concrete objects and pictorial representations e.g. objects, counters, dienes, pictures, number lines, diagrams etc.
- add and subtract two 1-digit numbers (e.g. $4+3=7$), a 2-digit number and ones (e.g. $17-4=13$), a 2-digit number and tens (e.g. $37+20=57$), two 2-digit numbers (e.g. $23+14=37$) and adding three one-digit numbers (e.g. finding two numbers that make ten $5+7+3=10+5$)
- show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems e.g. to solve $7+?=9$, they can use $9-7=?$

Vocabulary

addition: the process of calculating the total of two or more numbers. (adding, sum, plus, adding)

subtraction: the operation in which the difference between two numbers or quantities is calculated (difference, minus, take away, subtracting)

more/less a greater or smaller amount of something

equal to: the same amount of something

numeral: written symbols used to represent numbers

compare: to discover the difference and similarities between things or numbers

represent: a sign or symbol that means that thing

Commutativity: when 2 numbers can be added in any order and the answer will be the same e.g. $4+6 = 6+4$.

number bonds: pairs of numbers that add up to a specific number

number facts: basic addition, subtraction, multiplication and division facts that children should learn to recall instantly to support more complex calculations

bridging through ten: a mental method of adding two numbers whose total is greater than 10. (first make ten then add the remainder)



Number: Multiplication and Division

Can you say what we will be learning about in our programme of study about number when we look at multiplication and division?

By the end of the year, children should know how to:

- recall and use multiplication and division facts for the two, five and ten multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the correct symbols, e.g. multiplication ($\times$), division ($\div$) and equals ($=$) signs
- show that 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.

Vocabulary

division fact: a division number sentence related to the times tables e.g. the division fact $16 \div 4 = 4$ is related to the $4 \times$ table

multiple: a number that can be divided by another number a certain number of times without having a remainder.

multiplication: finding how many altogether in a given number of equal sized groups

repeated addition: a way of teaching multiplication as the repeated grouping of the same number e.g. 4 groups of 2 is the same as $2+2+2+2$

double: twice the amount

sharing: to share a number of objects into equal groups

group of: the number of things put together as a unit

half: two equal parts that together make a whole

equal: the same in amount, number or size

array: a pictorial representation to help children understand multiplication and division. Typically shown as rows or dots e.g. 3 groups of 2 will be shown as 3 rows of 2 dots.

division: the process of dividing a number up into equal parts and finding how many equal parts can be made and whether there is a remainder

remainder: the amount left when a number cannot be exactly divided by another number

commutativity: addition and multiplication have the property of commutativity-when two numbers are added or multiplied, this can be done in any order and the same answer will be obtained e.g. $3+2=5$, $2+3=5$ or $4 \times 6=24$ and $6 \times 4=24$ Note: (subtraction and division is not commutative)

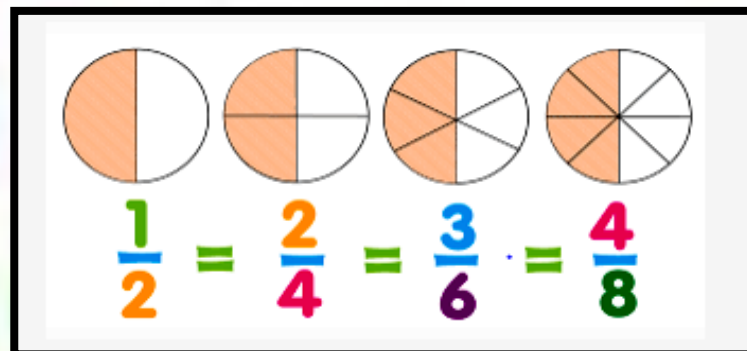


Number: Fractions

Can you say what we will be learning about in our programme of study about number when we look at fractions?

By the end of the year, children should know how to:

- recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ of a length, shape, set of objects or quantity
- write simple fractions for example, $\frac{1}{2}$ of $6 = 3$ and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ (understand that 2 quarters are the same as one half)



Vocabulary

equivalent fractions: fractions which represent the same amount but are expressed by using different numbers e.g. $\frac{2}{4}$ is the same as $\frac{1}{2}$

factor: one of two or more numbers that divides a given number without a remainder

whole number: a 'normal' number that hasn't been divided or split

fraction: a number which represents part of a whole

denominator: in a fraction, the number below the line

numerator: in a fraction, the number above the line

half: an amount or object is one of two equal parts that together make up the whole number, amount, or object.

quarter: is one of four equal parts of something

sharing: to divide or share out an amount e.g. of objects fairly and equally

grouping: the act of assembling or forming groups

equally: fairly and in the same way

quantity: an amount that you can measure or count

combining: to add together to make a single amount

whole: complete or not divided

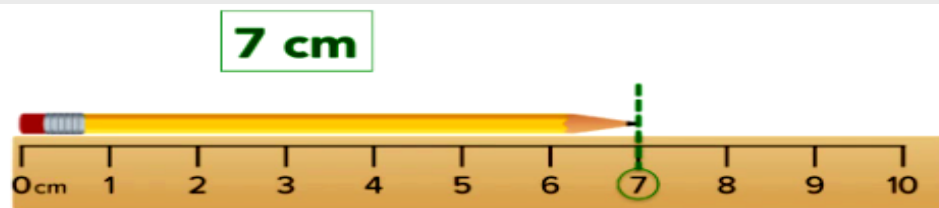
part: one of two or more equal, or almost equal, measures of something

Measurements: Length, Height, Mass, Weight, Capacity, Volume and Temperature

Can you say what we will be learning about in our programme of study about measurements where we look at length, height, mass, weight, capacity, volume and temperature?

By the end of the year, children should know how to:

- choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); 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 greater than, less than or equal to symbols ($>$, $<$ and $=$)



Vocabulary

greater than ($>$) and less than ($<$): symbols used to show the relative size of numbers

measure: particular length, width, or amount, that is its size or intensity, expressed in numbers.

capacity: the term used when measuring how much fluid fits into a container

mass: it refers to the weight of an object

temperature: the measured amount of heat in a place or in the body

length: something is the amount that it measures from one end to the other along the longest side.

height: the size or length from the bottom to the top.

volume: the amount of space taken up by an object

standard units: common units used in measurement e.g. centimetres, litres, grams

non-standard units: measurements used for younger children to introduce them to the concept of measuring e.g. how much sand will fill a bucket or how many cubes will balance the weight of a book on balancing scales

short: a small amount from one end to the other.

long: the distance from one end to the other

light: to express that it weighs not much

heavy: to express that it weighs a lot

empty: not containing anything

full: containing as much as possible

record: to use a device to measure an amount

Scale: a series of marks in a line with regular spaces between them for measuring, or an object for measuring weight

thermometer: a device used for measuring temperature, especially of the air or in a person's body

Measurements: Time

Can you say what we will be learning about in our programme of study about measurements where we look at time?

By the end of the year, children should know how to:

- compare and sequence intervals of time e.g. minute, hour, day, week, month
- tell and write the time to 5 minutes on an analogue clock, including quarter past/quarter to, and draw the hands on a clock face to show these times
- say that there are 60 minutes in one hour and 24 hours in one day



Vocabulary

digital clock: a clock which tells the time using numbers only

analogue clock: shows the time using numbers around the edge and hands that point to the number

week: a period of 7 days

month: a period of 4 weeks and one of the twelve periods a year is divided into

year: a period of 12 months

yesterday: the day before today

today: the present day

tomorrow: the day after today

hour: a period of 60 minutes

minute: a period of 60 seconds

second: short unit of time that is equal to a 60th of a minute

o'clock: used after a number from one to twelve to say the time when it is exactly that hour

clock hand: one of the long, thin pieces that point to the numbers on a clock or watch

half past: half past a particular hour is 30 minutes later than that hour

quarter past: 15 minutes after an hour

quarter to: 15 minutes before an hour

sequence:

a series of related things or events, or the order in which they follow each other:



Measurements: Money

Can you say what we will be learning about in our of study about measurements where we take a look at money?

By the end of the year, children should know how to:

- 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 value e.g. five 20p coins will equal the value of £1
- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change

Using 3 different coins each time, how many totals can you make?

Example:


$$\textcircled{5p} + \textcircled{2p} + \textcircled{1p} = 8p$$

Vocabulary

change: smaller units of money given in exchange for larger units of the same amount:

difference: the amount by which one thing is different from another

total: the amount you get when several smaller amounts are added together

compare: to examine or look for the differences or similarities between two or more things

count: the act of counting, or the total number of things counted

select: to choose by making careful decisions

note: a piece of paper money

pence: UK unit of money (pennies), the smaller value and denomination of coins

pounds: the standard unit of money used in the UK, larger value than pence

money: special pieces of paper that are used to buy things, or an amount of these that a person has

value: the amount of money that can be received for something

coin: a small, round piece of metal, usually silver or copper coloured, that is used as money

denomination:
a unit of value, especially of money

Geometry: Properties of Shapes

Can you say what we will be learning about in our of study about Geometry where we take a look at 2D and 3D shapes?

- By the end of the year, children should know how to:
- identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
 - 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]
 - compare and sort common 2-D and 3-D shapes and everyday objects

Vocabulary

2D shape: shapes which are flat, with 2 dimensions

3D shapes: shapes which have a solid form, with 3 dimensions

corner: also known as a vertex, the place on a 3D shape where 3 faces meet. (It also describe the angles on a 2D shape)

vertex/vertices: also known as corners on shapes

side: one of the lines (straight or curved), which encloses a 2D shape

edge: the place on a 3D shape where 2 faces meet

face: any flat surface of a 3D shape (faces can be curved and of many different shapes)

circle: 2D shape with 1 curved face and 0 vertices

square: 2D shape with 4 equal sides, 4 vertices and 4 right angles

triangle: 2D shape with 3 straight sides and 3 vertices

rectangle: 2D shape with 4 sides and 4 corners where 2 sides are longer

pentagon: 2D shape with 5 sides and 5 vertices

hexagon: 2D shape with 6 sides and 6 vertices

octagon: 2D shape with 8 sides and 8 vertices

cube: 3D shape with 6 square faces, 12 edges and 8 vertices

cuboid: 3D shape with 6 faces, some or all of which are rectangular, 12 edges and 8 vertices

cylinder: 3D shape with 2 circular faces, 1 rectangular curved face, 2 edges and 0 vertices

sphere: 3D shape with 1 curved face, 0 edges and 0 vertices

cone: 3D shape with 2 faces (1 circular), 1 edge and 1 vertex

prism: 3D shape with flat sides and identically shaped end faces

square based pyramid: 3D shape with 4 triangular faces, 1 square face and 5 vertices

regular shapes: 2D shapes with closed sides, where all the sides are the same length and all angles are the same

irregular shapes: 2D shapes whose sides and angles are not all the same



Geometry: Position and Direction

Can you say what we will be learning about in our of study about Geometry where we take a look at position and direction?

- By the end of the year, children should know how to:
- order and arrange combinations of mathematical objects by recognising and continuing 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).



clockwise



anticlockwise



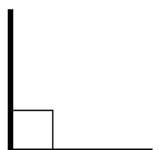
direction



half turn



quarter turn



right angle

Vocabulary

rotation of shapes: the movement of shapes around a fixed point (The shape itself will remain the same but the position in the space will change)

between: among two or more people or things

clockwise: a way of indicating the direction of a turn. Clockwise involves a turn to the right as it follows the hands of a clock

anti-clockwise: involves a turn to the left, against the direction of a clock's hands

geometry: the study of shape, position and movement

turn: a movement in space, either clockwise or anti-clockwise (to move in a circle around a fixed point or line)

direction: the position towards which someone or something moves or faces

forward: towards the direction that is in front of you

backwards: towards the direction that is opposite to the one in which you are facing or opposite to the usual direction:

left: on or towards the side of your body that is to the west when you are facing north

right: on or towards the side of your body that is to the east when you are facing north

half turn: turning to face backwards or the opposite way you were facing

quarter turn: turning to face left or right at a right angle



Statistics

Can you say what we will be learning about in our of study about statistics?

By the end of the year, children should know how to:

- interpret and construct simple pictograms, tally charts, block diagrams and simple tables with information they have collected
- 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

Types of transport	Number seen
bicycle	
Car	
train	
bus	

tally chart

Vocabulary

data handling: (now known as statistics) the area of maths which looks at representation and analysis of information through charts and graphs

statistics: the term used for teaching the collection, presentation and analysis of information or data

graph: a pictorial way of representing and comparing information. Types taught in primary schools include block graphs, bar charts, pictograms, pie charts and line graphs

interpret: to decide its meaning or significance

sort: to group things together

compare: to discover the difference and similarities between things or numbers

chart: another term for a graph or another way of pre-

senting information

tally chart: a chart used for the initial collection of data, usually presented as a table with different categories along the top or side where tally marks (groups of 5) are used to show how many in each category

Venn diagram: a way of sorting information using two or more circles, which may or may not overlap

pictogram: a chart or graph which uses pictures to represent data, set out the same as a bar chart but with pictures instead of bars whereby each picture represent one item or more than one

Carroll diagram: a way of sorting and presenting information using columns and rows

