Where Learning is Fun!

Mathematics Skills and knowledge linked to careers

Year 1

Number and Place value	Jobs you can do by becoming an expert in this learning objective
Count to and read across, forwards and backwards, beginning with 0 or one, from any given number.	**Teacher**
Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens.	**Shop owner**
Given a number, identify one more or one less.	**Head Chef**
Addition and Subtraction	
Represent and use number bonds and related number facts to 20.	**Bee Keeper**
Add and subtract digit and 2-dgit numbers to 20, including 0.	**Zoo Keeper**
Multiplication and division	
Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the class teacher.	**Lawyer**
Fractions	
Recognise, find and name a half as one of two equal parts of an object, shape or quantity.	**Own your own Bakery**
Recognise, find and name a quarter as one of two equal parts of an object, shape or quantity	**Head Chef**
Measurement	
Compare, describe and solve practical problems for measurement and begin to record lengths and heights.	**Architect**
Compare, describe and solve practical problems for measurement and begin to record mass/weight	**Aerospace engineer**
Compare, describe and solve practical problems for measurement and begin to record capacity and volume.	**Boat builder**
Compare, describe and solve practical problems for measurement and begin to record time.	**Sports Coach**
Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	**Teacher**
Geometry	
Recognise and name common 2-D shapes	**Bricklayer**
Recognise and name common 3-D shapes	**Civil engineer**
Describe position, direction, movement, including whole, half, quarter and three- quarter turns.	**CAD technician**

Year 2

Number and Place value	Jobs you can do by becoming an expert in this learning objective
Compare and order numbers from 0 to 100	**Headteacher**
Use place value and number facts to solve problems	**Events manager**
Use <> and = signs correctly	**Fishmonger**
Count in steps of two, three, and five from 0, and in tens from any number forward and backwards.	**Nurse**
Addition and Subtraction	
Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures.	**Pharmacist**
Solve problems with addition and subtraction applying an increasing knowledge of mental and written methods.	**Pharmacist**
Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100	**Sales manager**
Add and subtract numbers using concrete objects, pictorial representations, and mentally, including **a 2-digit number and ones**	**Shopkeeper**
Add and subtract numbers using concrete objects, pictorial representations, and mentally, including **a 2-digit number and tens.**	**Travel agent**
Add and subtract numbers using concrete objects, pictorial representations, and mentally, **including two 2-digit numbers**	**Retail buyer**
Add and subtract numbers using concrete objects, pictorial representations, and mentally, **including adding 3 1-digit numbers.**	**Bookseller**
Multiplication and division	
Recall and use multiplication and division facts for the 2, 5 and 10 x tables, including recognising odd and even numbers.	**Auditor**
Calculate mathematical statements for multiplication and division with the x tables and write them using the x , ÷ and = signs.	**Bank manager**
Show that multiplication of two numbers can be done in any order and division of one number by another cannot.	**Finance officer**
Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in context.	**School business manager**
Fractions	
Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, and set of objects or quantity.	**Head Chef**
Write simple fractions, for example ½ of 6 = 3 and recognise the equivalence of 2/4 and 1/2	**Teacher**
Measurement	
Choose and use appropriate standard units to estimate and measure length, height in any direction (cm/m); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels.	**Fire Fighter**
Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	**Architect**
Geometry	
Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.	**3D printing technician**
Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.	**Dressmaker**
Identify 2-D shapes on the surface of a 3-D shape	**Planning officer**
Compare and sort common 2-D and 3-D shapes and everyday objects.	**3D printing technician**
Order and arrange combinations of mathematical objects in patterns and sequences.	**Software developer**
Statistics	
Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.	**Data scientist**
Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.	**Shop Keeper**

Year 3

Number and Place value	Jobs you can do by becoming an expert in this learning objective
Count from 0 in multiples of 4, 8, 50 and 100.	**Auditor**
Work out if a given number is greater or less than 10 or 100.	**Charity fundraiser**
Recognise the place value of each digit in a 3-digit numbers (hundreds, tens and ones)	**Finance officer**
Solve number problems and practical problems involving these ideas.	**Auditor**
Addition and Subtraction	
Add and subtract numbers mentally including a **3-digit number and ones.**	**Bank manager**
Add and subtract numbers mentally including a **3-digit number and tens.**	**Business project manager**
Add and subtract numbers mentally including a **3-digit number and hundreds.**	**Finance officer**
Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.	**School business manager**
Multiplication and division	
Recall and use multiplication and division facts for the 3, 4 and 8 x tables.	**Stockbroker**
Write and calculate mathematical statements for multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	**Public finance accountant**
Fractions	
Count up and down in tenths; recognise that tenths arise from dividing an object into to ten equal parts and in dividing 1- digit numbers or quantities by 10.	**Paramedic**
Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.	**Fitness instructor**
Recognise and show, using diagrams, equivalent fractions with small denominators.	**Jockey**
Add and subtract fractions with the same denominator within one whole.	**Motorsport engineer**
Compare and order unit fractions, and fractions with the same denominators.	**Performance sports scientist**
Solve problems that involve all of the above.	**Performance sports scientist**
Measurement	
Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	**Police officer**
Add and subtract amounts of money to give change, using both £ and p in practical contexts.	**Hairdresser**
Tell and write the time from an analogue clock and 12 and 24-hour clock.	**Medical herbalist**
Geometry	
Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.	**Archaeologist**
Recognise angles as a property of a shape or a description of a turn	**Agricultural engineer**
Identify right angles, recognise that two right angles make a half turn, three make three quarters of a turn and four complete a turn; identify whether angles are greater or less than a right angle.	**Building technician**
Identify horizontal and vertical lines, and pairs of perpendicular and parallel lines.	**Architect**
Statistics	

Interpret and present data using bar charts, pictograms and tables.	**Geoscientist**
Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables.	**Meteorologist**

Year 4

Number and Place value	**Jobs you can do by becoming an expert in this learning objective**
Count in multiples of 6,7,9,25 and 1000	**Actuary**
Order and compare numbers beyond 1000	**Business adviser**
Count backwards through 0 to include negative numbers.	**Financial adviser**
Round any numbers to the nearest 10, 100 or 1000.	**Investment analyst**
Addition and Subtraction	
Add numbers with up to 4 digits using the formal written method of columnar addition.	**Private practice accountant**
Subtract numbers with up to 4 digits using the formal written methods of columnar subtraction.	**Economist**
Solve addition and subtraction problems in context, deciding which operations and methods to use and why.	**Financial adviser**
Multiplication and division	
Recall multiplication and division facts for multiplication tables up to 12 x 12.	**Anaesthetist**
Use place value, known and derived facts to multiply and divide mentally, including x by 0 and 1 and dividing by 1; multiplying together 3 numbers.	**Dietitian**
Recognise and use factor pairs and commutativity in mental calculations.	**Microbiologist**
Multiply 2 digit and 3 digit numbers by a 1 digit number using formal written layout.	**Pharmacist**
Solve problems involving multiplication and adding, including using the distributive law to multiply 2 digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	**Physiotherapist**
Fractions	
Recognise and show, using diagrams, families of common equivalent fractions.	**Surgeon**
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.	**Helicopter pilot**
Add and subtract fractions with the same denominator.	**Head Chef**
Recognise and write decimal equivalents of any number of tenths or hundredths.	**Fitness instructor**
Recognise and write decimal equivalents to ¼, ½ and ¾	**Jockey**
Round decimals with one decimal place to the nearest whole number.	**Motorsport engineer**
Compare numbers with the same number of decimal places up to two decimal.	**Performance sports scientist**
Solve simple money and measure problems involving fractions and decimals to two decimal places.	**Butcher**
Measurement	
Convert between different units of measure.	**Chemical engineer**
Measure and calculate the perimeter of a rectilinear figure in cm and m.	**Architect**

Estimate, compare and calculate different measures, including money in pounds and pence.	**Accountant**
Geometry	
Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	**Architect**
Identify acute and obtuse angles and compare and order angles up to two right angles by size.	**Technical architect**
Identify lines of symmetry in 2-D shapes presented in different orientations.	**Glassmaker**
Complete a simple symmetric figure with respect to a specific line of symmetry.	**Pattern cutter**
Statistics	
Interpret and present discrete and continuous data using appropriate geographical methods, including bar charts and time graphs.	**Zoologist**
Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	**Headteacher**

Year 5

Number and Place value	**Jobs you can do by becoming an expert in this learning objective**
Read and write numbers up to 1,000,000	**Bank manager**
Order and compare numbers up 1, 000,000	**Business analyst**
Interpret negative numbers in context.	**Bank manager**
Count forwards and backwards with positive and negative whole numbers including through zero.	**Refrigeration designer**
Addition and Subtraction	
Add whole numbers with more than four digits, including using formal written methods.	**Auditor**
Subtract whole numbers with more than four digits, including using formal written methods.	**Economist**
Add and subtract numbers mentally with increasingly large numbers.	**Shop Keeper**
Solve problems involving numbers up to 3 decimal places.	**Finance officer**
Multiplication and division	
Identify multiples and factors, including finding all factor pairs of a number and common factors of 2 numbers.	**School business manager**
Multiply numbers up to 4 digits by a 1 or 2 digit number using formal written methods.	**Tax inspector**
Multiply and divide mentally drawing upon known facts.	**Accounting technician**
Divide numbers up to 4 digits by a 1 digit whole number.	**Auditor**
Interpret remainders appropriate to context.	**Bank manager**
Multiply and divide whole numbers and those involving decimals by 10,100 and 1000.	**Teacher**
Recognise and use square numbers and cubed numbers and the notation for each.	**Flooring fitter**
Solve problems involving multiplication and division, including using knowledge of factors and multiples, squares and cubes.	**Flooring fitter**
Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.	**Finance officer**
Fractions and Decimals	
Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.	**Insurance broker**
Recognise mixed numbers and improper fractions and convert from one for to the other.	**Baker**
Add and subtract fractions with the same denominator and that are multiples of the same number.	**Butcher**

Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	**Antique dealer**
Recognise % and write percentages as a fraction with denominator 100 and as a decimal.	**Beauty consultant**
Solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator with a multiple of 10 or 25.	**Fishmonger**
Measurement	
Convert between different units of metric measure.	**Horticultural manager**
Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	**Architect**
Calculate and compare the area of a rectangle (including squares), and including using standard units, square centimetres, square metres and estimate the area of irregular shapes.	**Government planning Officer**
Geometry	
Identify 3-D shapes, including cubes and cuboids, from 2-D representations.	**Animator**
Know angles e measured in degrees: estimate and compare acute, obtuse and reflex angles.	**Fashion designer**
Draw given angles and measure them in degrees.	**Fine artist**
Identify angles at a point and a whole turn.	**Pilot**
Identify angles at a point on a straight line and half a turn.	**Pilot**
Identify other multiples of 90 degrees.	**Carpenter**
Use the properties of rectangles to deduce related facts and find missing lengths and angles.	**Furniture designer**
Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	**Graphic designer**
Statistics	
Solve comparison, sum and difference problems using information presented in a line graph.	**Market research data analyst**
Complete, read and interpret information in tables, including time tables.	**Market research data analyst**

Year 6

Number and Place value	Jobs you can do by becoming an expert in this learning objective
Read and write numbers up to 10,000,000	**Musician**
Order and compare numbers up 10, 000,000	**Textile designer**
Determine the value of each digit in numbers up 10 000 000	**Teaching Assistant**
Round any whole number	**Video editor**
Use negative numbers in context and calculate intervals across 0	**Auditor**
Solve number and practical problems with place value.	**Finance officer**
Addition and Subtraction	
Solve addition and multi-step problems in contexts, deciding which method and operation to use and why.	**Financial adviser**
Use estimation to check answers and appropriate degree of accuracy	**Management accountant**
Multiplication and division	
Multiply multi – digit numbers up to 4 digits by a 2 digit number using formal written methods.	**Public finance accountant**
Divide numbers up to 4 digits by a 2 digit whole number.	**Chemist**
Interpret remainders as whole number remainders, fractions or by rounding.	**Climate scientist**
Use knowledge of the order of operations to carry out operations using the four operations.	**Data analyst-statistician**
Solve problems involving addition, subtraction, multiplication and division.	**Data scientist**
Multiply 1-digit numbers with up to 2 decimal places by whole numbers.	**Environmental consultant**
Fractions and Decimals	
Use factors to simplify fractions.	**Food scientist**

Use common multiples to express fractions with the same denominator.	**Geoscientist**
Compare and order fractions, including fractions less than 1.	**Health and safety adviser**
Add and subtract fractions with different denominators and mixed numbers.	**Data scientist**
Multiply simple pairs of proper fractions, writing the answer in its simplest form.	**Forensic collision investigator**
Divide proper fractions by whole numbers.	**Intelligence analyst**
Use the equivalence between fractions, decimals and percentages.	**MP**
Ratio and Proportion	
Solve problems involving the relative size of two quantities where missing values can be found integer multiplication and division facts.	**Biologist**
Solve problems involving the calculation of percentages. 15% of 360	**Agronomist**
Solve problems involving similar shapes where the scale factor is known or can be found.	**Biotechnologist**
Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	**Cartographer**
Algebra	
Generate and describe linear number sequences	**Astronomer**
Express missing number problems algebraically	**Chemical engineer**
Find pairs of numbers that satisfy an equation with two unknowns.	**Energy engineer**
Measurement	
Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places.	**Forensic psychologist**
Use, read, write and convert between standard units, converting measurement of length, mass, volume and time.	**Hydrologist**
Recognise that shapes with the same area can have different perimeters and vice versa	**CAD technician**
Calculate the area of parallelograms and triangles.	**CAD technician**
Geometry	
Draw 2-d shapes using given dimensions and angles.	**Aerospace engineer**
Recognise, describe and build simple 3-d shapes, including making nets.	**Agricultural engineer**
Compare and classify geometric shapes based on their properties and sizes.	**CNC machinist**
Find unknown angles in any triangles, quadrilaterals and regular triangles.	**Toolmaker**
Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.	**Toolmaker**
Recognise angles where they meet at a point, are on a straight line, or are vertically opposite and find missing angles.	**Naval architect**
Describe positions on the full coordinate grid.	**Cartographer**
Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	**Materials engineer**
Statistics	
Interpret and construct pie charts and line graphs and use these to solve problems.	**Geotechnician**
Calculate and interpret the mean as an average.	**Economist**