

Whole Numbers

Skill	Achieved ?
Know the meaning of count and be able to count	
Know that a whole number is a normal counting number such as 0, 1, 2, 3, 4, ...	
Know the meanings of even number and odd number	
Know that approximating means to get an answer close to the actual (true) answer	
Know that rounding means to approximate (estimate) to a given level of accuracy	
Round a whole number to the nearest unit	
Know the meanings of add and subtract	
Add and subtract whole numbers (no more than 4 digits) without a calculator	
Know the meaning of multiply	
Multiply a whole number (up to 4 digits) by a single digit without a calculator	
Know the meanings of divide and remainder	
Divide simple whole numbers without a calculator	
Know what BODMAS stands for and add, subtract, multiply and divide other whole numbers using a calculator	

Integers and Temperature

Skill	Achieved ?
Know that an integer is a whole number or a negative whole number	
Know that temperature is a measure of how hot or cold something is	
Know that units of temperature include degrees Celsius ($^{\circ}C$) and degrees Fahrenheit ($^{\circ}F$)	
Read temperature from a thermometer	
Work out temperature differences	

Formulae

Skill	Achieved ?
Know that a formula is a way of working things out by replacing words or symbols by numbers	
Work out answers using a formula written in words or symbols	

Fractions, Percentages and Decimals

Skill	Achieved ?
Know that a <i>fraction</i> is (usually) part of a whole and is written as: $\frac{\text{numerator}}{\text{denominator}}$	
Work out <i>unitary fractions</i> (numerator = 1) of a whole number without a calculator	
Know that a <i>percentage</i> is a fraction with denominator = 100	
Know that 100 % = 1 whole and 1 % = 1 out of 100	
Know other important equivalences between fractions and common percentages such as: $50 \% = \frac{1}{2}$ $25 \% = \frac{1}{4}$ $75 \% = \frac{3}{4}$ $20 \% = \frac{1}{5}$ $10 \% = \frac{1}{10}$ $33\frac{1}{3} \% = \frac{1}{3}$	
Work out common percentages of whole numbers without a calculator	
Work out other percentages of whole numbers with a calculator	
Know that a <i>decimal (number)</i> is a whole number with a decimal point and a number of digits (fractional part) after the point	
Round a decimal to the nearest unit	
Find a decimal on a number scale (up to hundredths)	
Add and subtract decimals (up to 2 d.p.) without a calculator	
Multiply and divide decimals (up to 2 d.p.) by a one digit whole number	
Multiply and divide decimals (up to 2 d.p.) by 10 and 100	
Know simple decimals such as 50 % = 0 · 5 and 25 % = 0 · 25	

Statistics

Skill	Achieved ?
Know that the mode is the most common thing and work out the mode from a list of numbers	
Work out the mean (average) using the equation: <i>Mean = Total ÷ How many numbers there are</i>	
Know that a tally mark is a way of counting	
Know that a frequency table is a way of recording how many times something happens	
Draw or fill out a frequency table	
Work out the mode from a frequency table	
Know what pictographs, bar charts, line graphs, pie charts and scattergraphs are	
Pick out and read off information from the above 5 statistical diagrams	
Draw a pictograph, bar chart, line graph and scattergraph	
Describe the trend in a statistical diagram	

Symmetry and Tilings

Skill	Achieved ?
Know that a shape has symmetry if, after reflecting or rotating it, the shape looks the same	
Know the meaning of line of symmetry	
Know what a vertical line of symmetry is	
Complete a picture which has a vertical line of symmetry	
Know what a horizontal line of symmetry is	
Complete a picture which has a horizontal line of symmetry	
Know that a tiling (aka tessellation) is a way of covering a flat surface without overlaps or gaps (like bathroom tiles)	
Know that any triangle makes a tiling	
Know that any square or rectangle makes a tiling	
Know that any quadrilateral makes a tiling	
Know that any hexagon makes a tiling	
Know that a pentagon does not make a tiling	
Continue a tiling pattern	

Money

Skill	Achieved ?
Change pounds into pence and vice versa using the rule: $\text{£ } 1 = 100 \text{ p}$	
Know the meaning of wage and work out wage rises involving percentages	
Know the meanings of cost price (aka buying price) and selling price	
Know that a discount is a reduction in the normal cost price	
Work out discounts	
Work out profit using the equation: $\text{Profit} = \text{Cost Price} - \text{Selling Price}$	
Know the meaning of basic rate (measured in <i>pounds per hour</i>) and calculate basic pay using the equation: $\text{Basic pay} = \text{Basic rate} \times \text{Number of hours}$	
Know the meanings of overtime and bonus and know that gross pay includes these as well as basic pay	
Know that double time is a type of overtime	
Work out double time pay	
Work out gross pay when told basic pay, overtime and bonuses	
Know the meanings of national insurance , income tax and union dues and know that deductions includes all these	
Work out deductions when told national insurance, income tax and union dues	
Work out net pay using the equation: $\text{Net pay} = \text{Gross pay} - \text{Deductions}$	
Know that interest is an increase in money and usually written as a percentage (the interest rate)	
Work out the interest on a certain amount of money over 1 year when told the interest rate	
Know that Value Added Tax (VAT) is an extra charge on items and is usually given as a percentage	
Work out the VAT on an item and then work out the total cost	
Know that Hire Purchase (HP) is a way of paying for items with a deposit and regular (usually monthly) instalments : $\text{HP} = \text{Deposit} + (\text{Cost of each instalment} \times \text{Number of instalments})$	
Calculate Hire Purchase	

Angles and Bearings

Skill	Achieved ?
Know that an angle is the shape made by 2 lines (arms) sharing a common endpoint and that a unit of angle is the degree	
Know that an acute angle is strictly between 0° and 90° , an obtuse angle is strictly between 90° and 180° and a reflex angle is strictly between 180° and 360°	
Use a protractor to measure an angle	
Use a protractor to draw an angle	
Know that a right angle has 90°	
Work out a missing angle at a right angle	
Know that a straight line has 180°	
Work out a missing angle at a straight line	
Know that a circle has 360°	
Work out a missing angle in a circle	
Know that the four cardinal compass directions are North, South, East and West and know in which direction they point	
Know that four of the intercardinal compass directions are North East (NE), North West (NW), South East (SE) and South West (SW) and know in which direction they point	
Describe a given journey using compass directions	
Know that a bearing is an angle (i) written using 3 digits (ii) measured clockwise from a North line	
Know the bearings of the 4 cardinal compass directions	
Work out the bearing of a point B from a point A by drawing the North line at A and measuring clockwise to B	

Weight

Skill	Achieved ?
Know that mass is a measure of how much material there is	
Know that weight is a measure of how heavy something is	
Know that units of mass include grams (g) and kilograms (kg) and that these are related by: $1 \text{ kg} = 1\,000 \text{ g}$	
Know that in maths, 'weight' is often (incorrectly) used for 'mass'	
Change kilograms to grams by multiplying by 1 000	
Change grams to kilograms by dividing by 1 000	

Length and Perimeter

Skill	Achieved ?
Know that length is a measure of how long something is	
Know that units of length are the same as those of distance	
Know that perimeter is the total distance once around a 2D shape	
Work out the perimeter of a rectangle	
Work out the perimeter of a shape that can be broken up into rectangles only	

Scale Drawings

Skill	Achieved ?
Know that a scale is a rule for working out an actual (real-life) length when told the measured length (and vice versa)	
Work out a real-life length when told the scale and the measured length	
Draw an enlargement or reduction of a shape on squared paper	
Work out an enlarged or reduced length	

Coordinates

Skill	Achieved ?
Know that a coordinate is a pair of things (usually numbers) (x, y) , x being the x - coordinate and y the y - coordinate	
Know that a coordinate grid consists of an equally spaced (usually numbered) horizontal line (x - axis), an equally spaced (usually numbered) vertical line (y - axis) and the origin (where the axes cross)	
Know that (x, y) is not the same as (y, x) unless x and y are the same	
Know that points such as $(3, 0)$, $(8, 0)$ and $(0, 0)$ are on the x - axis	
Know that points such as $(0, 2)$, $(0, 9)$ and $(0, 0)$ are on the y - axis	
Know that the origin has coordinates $(0, 0)$	
Plot a coordinate when x and y are positive or zero	
Find and give the coordinates of an object on a grid with numbers and/or letters	

Area

Skill	Achieved ?
Know that area measures how much 2D space there is in a shape	
Know that units for area include square centimetres (cm^2) and square metres (m^2)	
Work out the area of a square ($L =$ length), rectangle ($L =$ length, $B =$ breadth) and right-angled triangle ($B =$ base, $H =$ height) by using the equations: $A = L \times L \quad \text{(Square)}$ $A = L \times B \quad \text{(Rectangle)}$ $A = B \times H \div 2 \quad \text{(Triangle)}$	
Work out areas of other shapes by counting squares and half-squares	

Volume

Skill	Achieved ?
Know that volume measures how much 3D space there is in a shape	
Know that units for volume include cubic centimetres (cm^3) , cubic metres (m^3) , litres (l) and millilitres (ml) , and these last two are related by: $1 \text{ l} = 1000 \text{ ml}$	
Change litres to millilitres by multiplying by 1 000	
Change millilitres to litres by dividing by 1 000	
Work out the volume of a cube or cuboid by using the equations: $V = L \times L \times L \quad \text{(Cube)}$ $V = L \times B \times H \quad \text{(Cuboid)}$	
Work out the height of a cuboid when told its volume and 2 sides	
Work out the volume of a shape by counting cubes	

Time, Distance and Speed

Skill	Achieved ?
Know that time is a measure of how long something lasts	
Know that time units include seconds (s) , minutes (min) , hours (hr) , days (d) , weeks (wk) , months (mth) and years (yr) and know how these are related:	
1 min = 60 s	
1 hr = 60 min	
1 day = 24 hr	
1 week = 7 days	
1 year = 365 days	
1 leap year = 366 days	
Know that there are 52 weeks in a year	
Change between different units of time	
Know the 7 days of the week and their order	
Know the 12 months of the year and their order	
Know how many days there are in each month	
Know what 12-hour time is and how it is written	
Know what 24-hour time is and how it is written	
Change 12-hour time to 24-hour time	
Change 24-hour time to 12-hour time	
Work out time differences, including those on bus and train timetables, in the same half-day (for 12-hour time) or in the same day (for 24-hour time)	
Know that distance is a measure of how far away something is	
Know that units of distance include millimetres (mm) , centimetres (cm) , metres (m) , kilometres (km) and miles	
Know that speed is a measure of how fast something moves	
Know that units of speed include miles per hour (mph) and kilometres per hour (kph)	
Calculate distance D when told speed S and time T by using the equation:	
$D = S \times T$	

2D Shapes

Skill	Achieved ?
Know that a 2-dimensional (2D) shape is a (closed) shape drawn on a (usually flat) surface	
Know that a 3-sided shape is called a triangle	
Know that a quadrilateral is a 4-sided shape	
Know that a square is a quadrilateral with (i) all sides the same (ii) 4 right angles (iii) 2 diagonals that bisect each other (iv) 4 lines of symmetry	
Know that a rectangle is a quadrilateral with (i) 2 pairs of parallel lines (different length) (ii) 4 right angles (iii) 2 diagonals that bisect each other (iv) 2 lines of symmetry	
Know that a circle is all points the same distance from a given point (centre)	
Know the meanings of radius (r) and diameter (D) and what they look like on a circle	
Know that $D = 2 \times r$	
Work out the diameter of a circle when told its radius	
Work out the radius of a circle when told its diameter	

3D Shapes

Skill	Achieved ?
Know that a 3-dimensional (3D) shape is a shape drawn in space	
Recognise shapes such as a cube, cuboid, cylinder, pyramid, cone and sphere and name them when shown pictures of them	
Know that a net of a 3D shape is a flat (2D) shape which, when folded up, makes the 3D shape	
Recognise the net of a cube	
Draw the net of a cube	
Decide whether or not a given net can be used to make a cube	
Recognise the net of a cuboid	
Draw the net of a cuboid	
Decide whether or not a given net can be used to make a cuboid	

Variation (Proportion)

Skill	Achieved ?
Know that 2 things are in <i>direct proportion</i> (aka <i>direct variation</i>) if one increases at the same rate as the other	
Solve simple proportion problems such as, if 2 identical bottles weigh 40 grams, find the weight of 12 of these bottles	
Solve more difficult problems involving proportion such as, if 3 identical items cost £ 21 · 36, find the cost of 5 of these items	

Patterns (Sequences)

Skill	Achieved ?
Know the meaning of <i>pattern</i> (aka <i>sequence</i>)	
Spot a number pattern and continue it	
Spot a picture pattern with <i>constant differences</i> and fill out a table of values	
Work out a rule (in words) for a picture pattern	

Possibilities and Combinations

Skill	Achieved ?
Know the meanings of <i>possibility</i> and <i>combination</i>	
Fill out a table of different possibilities (combinations) when given choices	
Know the meaning of <i>trial and error</i>	
Fill out a table of different possibilities using trial and error when given numerically restricted choices	