

## Maths Skills & knowledge in Year 6

| Year 6                                           |                                                                                      |
|--------------------------------------------------|--------------------------------------------------------------------------------------|
| Place Value                                      | Understand the value of number to 1,000,000.                                         |
|                                                  | Understand the value of numbers to 10,000,000.                                       |
|                                                  | Read and write numbers to 10,000,000.                                                |
|                                                  | Read, Complete and understand number lines to 10,000,000.                            |
|                                                  | Compare and order any integers.                                                      |
|                                                  | Round any integer.                                                                   |
|                                                  | Understand the value of negative numbers.                                            |
|                                                  |                                                                                      |
| Addition, Subtraction, Multiplication & Division | Add and subtract integers.                                                           |
|                                                  | Find common factors of numbers/integers.                                             |
|                                                  | Find common multiples of numbers.                                                    |
|                                                  | Know the prime numbers to 100                                                        |
|                                                  | To work out squared and cubed numbers.                                               |
|                                                  | Multiply a 4-digit number by a 2-digit number.                                       |
|                                                  | Solve problems with multiplication.                                                  |
|                                                  | Short division.                                                                      |
|                                                  | Long division with remainders.                                                       |
|                                                  | Solve problems with division.                                                        |
|                                                  | Solve multi-step problems.                                                           |
|                                                  | Order of operations.                                                                 |
|                                                  | Mental calculations and estimation.                                                  |
|                                                  | Carry out reasoning from known facts.                                                |
|                                                  |                                                                                      |
| Fractions                                        | Find equivalent fractions and simplify.                                              |
|                                                  | Read, identify, complete, understand equivalent fractions on a number line.          |
|                                                  | Compare and order fractions by converting the denominator.                           |
|                                                  | Compare and order fractions by converting the denominator.                           |
|                                                  | Compare and order fractions (numerator focus).                                       |
|                                                  | Add and subtract simple fractions.                                                   |
|                                                  | Add and subtract any two fractions.                                                  |
|                                                  | Add mixed numbers.                                                                   |
|                                                  | Subtract mixed numbers.                                                              |
|                                                  | Multi-step problems with fractions.                                                  |
|                                                  |                                                                                      |
| Fractions (Pt. 2)                                | Multiply fractions by integers.                                                      |
|                                                  | Multiply fractions by fractions.                                                     |
|                                                  | Divide a fraction by an integer.                                                     |
|                                                  | Complete mixed questions with fractions.                                             |
|                                                  | Find a fraction of an amount.                                                        |
|                                                  | Find a whole amount when a fraction represents a part of the whole amount (integer). |
|                                                  |                                                                                      |
| Ratio                                            | Know when to add in a sequence/problem or multiply.                                  |

## Maths Skills & knowledge in Year 6

|                 |                                                                                                                                                                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | (additive or multiplicative.)                                                                                                                                                                                                           |
|                 | Use ratio language.                                                                                                                                                                                                                     |
|                 | Understand the ratio symbol.                                                                                                                                                                                                            |
|                 | Understand the link between ratio and fractions.                                                                                                                                                                                        |
|                 | Understand scale drawings.                                                                                                                                                                                                              |
|                 | Use scale factors.                                                                                                                                                                                                                      |
|                 | Solve problems with similar shapes.<br>(e.g. different shapes with the same area.)                                                                                                                                                      |
|                 | Solve ratio problems.                                                                                                                                                                                                                   |
|                 | Solve proportion problems.                                                                                                                                                                                                              |
|                 | Understand recipe amounts.                                                                                                                                                                                                              |
|                 |                                                                                                                                                                                                                                         |
|                 |                                                                                                                                                                                                                                         |
| <b>Algebra</b>  | Use 1-step function machines.                                                                                                                                                                                                           |
|                 | Use 2-step function machines.                                                                                                                                                                                                           |
|                 | Form expressions (using X and y).<br>$x + 5$                                                                                                                                                                                            |
|                 | Understand and make substitutions (replacing one thing for another.)<br>e.g. Substitution of coins for their value.<br>Giving value to a multilink cube or a base ten cube.<br>Giving value to X and y.<br>Shapes representing numbers. |
|                 | Understand and use formulae.<br>e.g. $c = 2s$ ( $2 \times s$ )                                                                                                                                                                          |
|                 | <u>How to form equations.</u><br>(where x is a specific unknown value.)<br>x has just one value. (How to write an algebraic equation)<br>rather than $x + x = 12$ write $2x = 12$                                                       |
|                 | Solve 1-step equations.                                                                                                                                                                                                                 |
|                 | Solve 2-step equations.                                                                                                                                                                                                                 |
|                 | Find pairs of values.<br>Where a circle and a square might represent positive integers.<br>Different possible options<br>Find all possibilities.                                                                                        |
|                 | Solve problems with two unknowns.                                                                                                                                                                                                       |
|                 |                                                                                                                                                                                                                                         |
|                 |                                                                                                                                                                                                                                         |
|                 |                                                                                                                                                                                                                                         |
|                 |                                                                                                                                                                                                                                         |
|                 |                                                                                                                                                                                                                                         |
| <b>Decimals</b> | Place value within 1.                                                                                                                                                                                                                   |
|                 | Place value- integers and decimals.                                                                                                                                                                                                     |
|                 | Round decimals                                                                                                                                                                                                                          |
|                 | Add and subtract decimals.                                                                                                                                                                                                              |
|                 | Multiply by 10,100 & 1000.                                                                                                                                                                                                              |
|                 | Divide by 10,100 & 1000.                                                                                                                                                                                                                |
|                 | Multiply decimals by integers.                                                                                                                                                                                                          |
|                 | Divide decimals by integers.                                                                                                                                                                                                            |
|                 | Multiply & divide decimals in context.                                                                                                                                                                                                  |
|                 |                                                                                                                                                                                                                                         |

## Maths Skills & knowledge in Year 6

|                                              |                                                      |
|----------------------------------------------|------------------------------------------------------|
|                                              | (Real life scenarios)                                |
|                                              |                                                      |
| <b>Fractions, Decimals &amp; Percentages</b> | Decimal and fraction equivalents.                    |
|                                              | Fractions as division.                               |
|                                              | Understand percentages.                              |
|                                              | Fractions to percentages.                            |
|                                              | Equivalent fractions, decimals and percentages.      |
|                                              | Order fractions, decimals and percentages.           |
|                                              | Percentage of an amount - one step.                  |
|                                              | Percentage of an amount- multi-step.                 |
|                                              |                                                      |
| <b>Area, Perimeter &amp; Volume</b>          | Understanding shapes with the same area.             |
|                                              | Understanding area and perimeter.                    |
|                                              | Finding the area of a triangle- by counting squares. |
|                                              | Finding the area of a parallelogram.                 |
|                                              | Finding the volume- by counting cubes.               |
|                                              | Finding the volume of a cuboid.                      |
|                                              |                                                      |
| <b>Statistics</b>                            | Understanding & drawing line graphs.                 |
|                                              | Understanding and drawing dual bar charts.           |
|                                              | Reading and interpreting pie charts.                 |
|                                              | Understanding pie charts and percentages.            |
|                                              | Drawing pie charts.                                  |
|                                              | Finding the mean.                                    |
|                                              |                                                      |
| <b>Measurement: Converting Units</b>         | Understand various metric units.                     |
|                                              | Convert metric units.                                |
|                                              | Calculate with metric units.                         |
|                                              | Convert miles and kilometres.                        |
|                                              |                                                      |
| <b>Shape</b>                                 | Measure and classify angles.                         |
|                                              | Calculate angles.                                    |
|                                              | Vertically opposite angles.                          |
|                                              | Angles in a triangle.                                |
|                                              | Angles in a triangle- special cases.                 |
|                                              | Angles in a triangle- missing angles.                |
|                                              | Angles in quadrilaterals.                            |
|                                              | Angles in polygons.                                  |
|                                              | Circles                                              |
|                                              | Draw shapes accurately.                              |
|                                              | Nets of 3D shapes.                                   |
|                                              |                                                      |

# Knowsley Junior School

## Maths Skills & knowledge in Year 6

|                                                |                                             |
|------------------------------------------------|---------------------------------------------|
| Geometry, Position &<br>Direction              | The first quadrant                          |
|                                                | Read and plot points in the four quadrants. |
|                                                | Solve problems with coordinates.            |
|                                                | Translations                                |
|                                                | Reflections.                                |
|                                                |                                             |
| Maths Investigations<br>Consolidation/Catch up |                                             |