Year 6 Maths Checklist

These Twinkl Maths checklists link to the expectations set out in the 2014 English National Curriculum for Mathematics and also include reference to the guidance set out in Maths Appendix 1. They are split into:

- Working Towards the Expected Standard
- Working at the Expected Standard
- Working at Greater Depth Within the Expected Standard

All of the statements are progressive within and across the year groups, and work on the expectation that the majority of pupils will be working on their own year group's aims. Consequently, Twinkl have tried to ensure that the criteria for Working Towards the Expected Standard in one year group is not the same as the criteria for Working at Greater Depth in the previous year group. The criteria for Working Towards and Working at Greater Depth in any year group is related to that year group's National Curriculum expectations.

Teachers may feel the need to revisit expectations from earlier years to consolidate knowledge and build on pupils' understanding, or go beyond the aims set out here if they feel it is appropriate for their highest-attaining students.

How to Use the Checklists

The grids can be used to track the attainment of individual pupils or alternatively, could be used to highlight the progress of groups of students who are focusing on the same development areas or Maths targets.

They allow teachers to make 'best fit' judgements by ticking and dating relevant criteria as a child/group progresses throughout a term or school year.

Teachers may find the Differentiated Maths Mats useful in providing more detail and exemplification.

Name (s)_____ Class_____

Working Towards		Expected		Greater Depth	
In most cases, the objective will be simplified, by cutting aspects out, or by using smaller numbers, etc. These can be seen as a step towards the expected standard. Where the objective is the same, it may be that greater adult support is required than for the expected standard.		These are the objectives from the National Curriculum. Teachers will need to make their own decisions about the level of competency required to be at the expected standard. Possible examples can be found on the Differentiated Maths Mats for each mathematical area.		In many cases, the objective is similar or the same as the expected standard. Greater depth means children explaining and reasoning, enabling them to deepen their mathematical understanding. Possible examples can be found on the Differentiated Maths Mats for each mathematical area.	
Number and Place Value					
Read, write, order and compare numbers up to 1 000 000 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.		Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.	
Round any whole number *up to 100 000* to a required degree of accuracy.		Round any whole number to a required degree of accuracy.		Round any whole number to a required degree of accuracy.	
Use negative numbers in context, and calculate intervals across zero.		Use negative numbers in context, and calculate intervals across zero.		Use negative numbers in context, and calculate intervals across zero.	
Solve number and practical problems that involve all of the above.		Solve number and practical problems that involve all of the above.		Solve number and practical problems that involve all of the above.	
Addition and Subtraction Multiplication and Division					
Multiply multi-digit numbers up to *2* digits by a two-digit whole number using the formal written method of long multiplication.		Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.		Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.	
Divide numbers up to 3 digits by a two-digit whole number *less than 20* 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 two-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 two-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 3 digits by a two-digit number less than 20 using the formal written method of short division where appropriate, interpreting remainders according to the context.		Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.		Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.	
Perform mental calculations, including with mixed operations and large numbers.		Perform mental calculations, including with mixed operations and large numbers.		Perform mental calculations, including with mixed operations and large numbers.	
Identify common factors, common multiples and prime numbers *below 30.*		Identify common factors, common multiples and prime numbers.		Identify common factors, common multiples and prime numbers.	
Use their knowledge of the order of operations to carry out calculations involving the four operations.		Use their knowledge of the order of operations to carry out calculations involving the four operations.		Use their knowledge of the order of operations to carry out calculations involving the four operations.	
Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.		Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.		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 addition, subtraction, multiplication and division.		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 estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.		Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	
Fractions					
Use common factors to simplify fractions; use common multiples to express *simple* fractions in the same denomination.		Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.		Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.	
Compare and order fractions.		Compare and order fractions, including fractions > 1.		Compare and order fractions, including fractions > 1.	
Add and subtract fractions with different denominators *which are multiples,* using the concept of equivalent fractions.		Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.		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, $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$].		Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$].		Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$].	
Divide *simple* proper fractions by whole numbers [for example, $\frac{1}{2} \div 2 = \frac{1}{4}$].		Divide *simple* proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$].		Divide proper fractions by whole numbers [for example, $\frac{4}{5} \div 8 = \frac{4}{40} = \frac{1}{10}$].	
		Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$].		Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$].	
Identify the value of each digit in numbers given to *two* decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.		Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.		Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.	
Multiply one-digit numbers with up to one decimal places by whole numbers.		Multiply one-digit numbers with up to two decimal places by whole numbers.		Multiply one-digit numbers with up to two decimal places by whole numbers.	
Use written division methods in cases where the answer has up to one decimal place.		Use written division methods in cases where the answer has up to two decimal places.		Use written division methods in cases where the answer has up to two decimal places.	
Solve problems which require answers to be rounded to specified degrees of accuracy.		Solve problems which require answers to be rounded to specified degrees of accuracy.		Solve problems which require answers to be rounded to specified degrees of accuracy.	
Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.		Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.		Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	
Ratio and Proportion					
Solve *simple* problems involving the relative sizes of two quantities where missing values can be found by using *simple* integer multiplication and division facts.		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 the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.	

Solve problems involving the calculation of *simple* percentages [for example, of measures, and such as 10% of 360].		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 the calculation of percentages [for example, of measures, and such as 12% of 360] and the use of percentages for comparison.	
Solve problems involving similar shapes where the scale factor is known.		Solve problems involving similar shapes where the scale factor is known or can be found.		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 *simple* fractions and multiples.		Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.		Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	
Algebra					
Use simple formulae.		Use simple formulae.		Use formulae.	
Generate and describe *simple* linear number sequences.		Generate and describe linear number sequences.		Generate and describe linear number sequences by writing equation for the nth term.	
Express *simple* missing number problems algebraically.		Express missing number problems algebraically.		Express missing number problems algebraically.	
Find pairs of numbers that satisfy a *simple* equation with two unknowns.		Find pairs of numbers that satisfy an equation with two unknowns.		*Explain how to find* pairs of numbers that satisfy an equation with two unknowns.	
Enumerate possibilities of combinations of two variables.		Enumerate possibilities of combinations of two variables.		Enumerate possibilities of combinations of two variables.	
Measurement					
Solve problems involving the calculation and conversion of units of measure, using decimal notation up to two decimal places where appropriate.		Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.		Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three 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 *two* decimal places.		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 three decimal places.		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 three decimal places.	
Convert between miles and kilometres.		Convert between miles and kilometres.		Convert between miles and kilometres.	
Recognise that *rectangles* with the same areas can have different perimeters and vice versa.		Recognise that shapes with the same areas can have different perimeters and vice versa.		Recognise that shapes with the same areas can have different perimeters and vice versa.	
Recognise when it is possible to use formulae for area of shapes.		Recognise when it is possible to use formulae for area and volume of shapes.		Recognise when it is possible to use formulae for area and volume of shapes.	
Calculate the area of right-angled triangles.		Calculate the area of parallelograms and triangles.		Calculate the area of parallelograms and triangles.	
Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3).		Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].		Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].	
Geometry – properties of shapes					
Draw *rectangles and right-angled triangles* using given dimensions.		Draw 2D shapes using given dimensions and angles.		Draw *accurately* 2D shapes using given dimensions and angles.	
Recognise, describe and build cuboids, including making nets.		Recognise, describe and build simple 3D shapes, including making nets.		Recognise, describe and build 3D shapes, including making nets.	
Compare and classify *simple* geometric shapes based on their properties and sizes and find unknown angles in any triangles.		Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.		Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and *know the angles in common* polygons.	

Name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.		Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.		Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.	
Recognise angles where they are on a straight line, or are vertically opposite, and find missing angles.		Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.		Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	
Geometry – position and direction					
Describe positions in the first quadrant of a coordinate grid.		Describe positions on the full coordinate grid (all four quadrants).		Describe positions on the full coordinate grid (all four quadrants).	
Draw and translate simple shapes on the coordinate plane.		Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.		Draw and translate simple shapes on the coordinate plane, and reflect them in the axes and about other vertical and horizontal lines.	
Statistics					
Interpret pie charts and line graphs and use these to solve problems.		Interpret and construct pie charts and line graphs and use these to solve problems.		Interpret and construct pie charts and line graphs and use these to solve problems.	
Calculate and interpret the mean of three numbers as an average.		Calculate and interpret the mean as an average.		Calculate and interpret the mean as an average.	