

Milestones for when children are expected to attain declarative knowledge

Year 2 – Statistics				
Declarative knowledge	Procedural knowledge	Conditional knowledge	Vocabulary	Stem sentences
<p>I know that I can explain how data is represented and read.</p> <p>I know that I can explain how to interpret data.</p>	<p>I know how to interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</p> <p>I know how to ask and answer questions by counting the number of objects in each category and sorting the categories by quantity.</p> <p>I know how to ask and answer questions about totalling and comparing categorical data</p>	<p>I know when interpreting data which mathematical calculation to use and why.</p>	<p>Count, tally, tally chart, table; data, represent, sort; pictogram, symbol; block diagram, axis; label, title, scale; most popular, most common, least popular, least common; Venn diagram, Carroll diagram.</p>	<p>I can see ___ is the same and ___ is different</p> <p>There are ___ altogether</p> <p>There are ___ worms and ___ centipedes, there are ___ altogether</p> <p>There are more ___ than ___</p> <p>The difference between ___ and ___ is.</p> <p>I know that each symbol is worth ___ because _____</p>

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Year 3 – Statistics				
Declarative knowledge	Procedural knowledge	Conditional knowledge	Vocabulary	Stem sentences
<p>I know that I can explain how to read varying representations of discrete data.</p> <p>I know that I can use a simple scale.</p> <p>I know that I can interpret and analyse data.</p> <p>I know that I can present data in many contexts</p>	<p>I know how to interpret and present data using bar charts, pictograms and tables</p> <p>I know how to choose the appropriate scale for a graph, justifying my decision.</p>	<p>I know when interpreting data which mathematical calculation to use and why.</p> <p>I know when solving one-step and two- step questions [for example ‘How many more?’ and ‘How many fewer?’] how to use information presented in scaled bar charts and pictograms and tables to help me.</p>	<p>Chart, bar chart; frequency table, Carroll diagram, Diagram</p>	<p>I can see that ____ is the same and ____ is different</p> <p>I can the difference between the largest and smallest amount is ____</p> <p>I can see from this diagram/ table/ chart ____</p> <p>I know that each symbol is worth ____ because</p> <p>From the ____ I can see ____ has the most and ____ has the least.</p>

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Year 4 – Statistics				
Declarative knowledge	Procedural knowledge	Conditional knowledge	Vocabulary	Stem sentences
<p>I know I can interpret and analyses graphs and charts to solve problems.</p> <p>I know that I can use a greater range of scale in my representations.</p> <p>I know that I can create and interpret graphical representation of data to record change over time.</p> <p>I know that I can correctly present data using appropriate graphical methods.</p>	<p>I know how to interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and line graphs.</p> <p>I know how to solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</p>	<p>I know when interpreting and analysing data which mathematical calculation to use and why.</p> <p>I know when making predictions from graphs how to use the current information to inform my prediction.</p>	<p>Continuous data, discrete data; line graph, x-axis, y-axis</p>	<p>I will use ___ as a scale because _____</p> <p>I can see from the graph that _____ is the _____ temperature/ amount and _____ is the smallest temperature/ amount</p> <p>I predict from the graph that when _____ is _____ the value will be _____</p> <p>I can the difference between the largest and smallest amount is _____</p> <p>I can see from this diagram/ table/ chart _____</p> <p>The horizontal axis shows _____, the vertical axis shows _____.</p> <p>Each interval on the vertical axis goes up _____</p>

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Year 5 – Statistics				
Declarative knowledge	Procedural knowledge	Conditional knowledge	Vocabulary	Stem sentences
<p>I know that some representations of data are more appropriate and can explain why to use a line graph.</p> <p>I know that I understand which representations of data are most appropriate and why.</p> <p>I know that I can read a timetable and complete missing information.</p>	<p>I know how to solve comparison, sum and difference problems using information presented in line graphs</p> <p>I know how to complete, read and interpret information in tables, including timetables</p>	<p>I know when solving problems involving statistics which mathematical calculation to use and why.</p> <p>I know when creating graphs which type of graph will be the best to represent my data.</p>	<p>Continuous data, discrete data; line graph, x-axis, y-axis (no new vocab)</p>	<p>The horizontal axis shows _____, the vertical axis shows _____.</p> <p>Each interval on the vertical axis goes up _____</p> <p>At _____, the graph reads _____</p> <p>At _____, the graph reads _____</p> <p>The difference between the two points is _____</p> <p>The value in _____ is _____</p> <p>The value in _____ is _____</p> <p>The difference between the values is _____</p> <p>The _____ with the most/least is _____</p> <p>Where the _____ column meets the _____ row, this shows _____</p> <p>To find a missing total, I need to _____ the numbers in a _____ or _____</p> <p>To find a missing value, I need to _____ from _____</p> <p>The journey/lesson/programme starts at _____ and ends at _____</p>

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Year 6 – Statistics / Algebra/ Ratio and proportion				
Declarative knowledge	Procedural knowledge	Conditional knowledge	Vocabulary	Stem sentences
<p>I know that I can find the common difference for the nth term.</p> <p>I know that proportions relate to the whole and ratios are part to part.</p> <p>I know that some representations of data are more appropriate and can explain why.</p> <p>I know that I can use the arithmetic relationships to find unknowns or variables.</p> <p>I know that I can use the arithmetic for finding the mean average.</p> <p>I know that I can use formulae in mathematics and science.</p> <p>I know that I can solve problems with ratio and proportion.</p> <p>I know that I can interpret and draw graphs relating two variables, arising from my own enquiry and in other subjects.</p>	<p>I know how to interpret and construct pie charts and line graphs and use these to solve problems.</p> <p>I know how to calculate and interpret the mean as an average.</p> <p>I know how to use simple formulae.</p> <p>I know how to express missing number problems algebraically.</p> <p>I know how to find pairs of numbers that satisfy an equation with 2 unknowns.</p> <p>I know how to enumerate possibilities of combinations of 2 variables.</p> <p>I know how to generate and describe linear number sequences.</p> <p>I know how to solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts.</p> <p>I know how to solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</p>	<p>I know when solving problems with data which mathematical calculation to use and why.</p> <p>I know when creating a graph how to choose an appropriate scale for my graph.</p> <p>I know when solving problems involving similar shapes where the scale factor is known or can be found which strategy to use.</p> <p>I know when solving problems involving the calculation of percentages (e.g., of measures such as 15% of 360) and the use percentages for comparison which method to use.</p>	<p>Mean, pie chart, fraction, percent, percentage, proportion, equal, unequal, sharing, one for every, proportionality, ratio, scale, unequal grouping, unequal sharing, ascending order, commutative property, descending order, enumerate, equation, expression, formula, integer, linear, pattern, puzzle, rule, pattern, sequences, symbol, term, triangular number, unknown, variable.</p>	<p>The horizontal axis shows ____</p> <p>The vertical axis shows ____</p> <p>At____ , the graph reads ____</p> <p>At____ , the graph reads ____</p> <p>The difference between the two points is ____</p> <p>The first bar represents ____</p> <p>The second bar represents ____</p> <p>The difference between ____ and ____ is ____</p> <p>The bar ____ is closer to ____ than ____ , so I estimate that the value is ____</p> <p>There are ____ equal parts altogether.</p> <p>The total is ____ , so each equal part is worth ____</p> <p>One part is worth ____</p> <p>There are ____ equal parts altogether, so the total is equal to ____</p> <p>If ____ % is worth ____ , then I can multiply/divide it by ____ to find ____ %.</p> <p>If the total is ____ , then the part representing ____ % is worth ____</p> <p>If the part representing ____% is worth ____ , then the total is ____</p> <p>The fraction/percentage of ____ is ____</p> <p>The whole pie chart is ____°</p> <p>This represents items of data.</p> <p>Each item of data is represented by ____ ÷ ____ = ____°</p>