## Year 8 Maths Learning Journey

## Summer term 4

Reasoning with data: The data handling cycle

| Core knowledge |  |
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| Set up a statistical enquiry <br> "What is a hypothesis? Why do you need a hypothesis?" | WORKSHEET |
| Design and criticise questionnaires <br> "Why could having multiple choice answers/ranges make a questionnaire easier <br> to answer?" | WORKSHEET |
| Draw and interpret pictograms, bar charts and vertical line charts <br> "Why is it important to include e.g. a key, labels on the axes etc.?" | WORKSHEET |
| Draw and interpret multiple bar charts <br> "When might it be useful to create a multiple bar chart?" | $\underline{\text { WORKSHEET }}$ |
| Draw and interpret pie charts <br> "What type of data would you represent in a pie chart?" | WORKSHEET |
| Draw and interpret line graphs <br> "Does the line graph have to start at 0? How can you show that your axis has <br> not started from 0?" | WORKSHEET |
| Choose the most appropriate diagram for given set of data <br> "In which situation is a pie chart/bar chart/line graph the most useful? Why?" | WORKSHEET |
| Represent and interpret grouped quantitative data <br> "Why do we leave a space between the bars on a bar chart, but we don't on a <br> frequency diagram?" | WORKSHEET |
| Find and interpret the range <br> "How can you work out the range? What does the range tell you about a set of <br> data? Is it an average?" | WORKSHEET |
| Compare distributions using charts <br> "What is the same and what is different about the charts?" | WORKSHEET |
| $\frac{\text { Identify misleading graphs }}{\text { "What information should you check on a graph to ensure the data is not }}$misleading?" | WORKSHEET |

## Learning Checkpoints

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| The data handling cycle |  |  |

## Key Vocabulary:

Average: calculated "central" value of a set of numbers
Bar chart: a diagram in which the numerical values of variables are represented by the height or length of lines or rectangles of equal width

Compare: process or method in which one can determine whether a number is smaller, greater, or equal to another number according to their values.

Continuous: Data arising from measurements taken on a continuous variable
Difference: In mathematics (as distinct from its everyday meaning), difference means the numerical difference between two numbers or sets of objects and is found by comparing the quantity of one set of objects with another.

Discrete: Data resulting from situations involving discrete variables
Distribution: the way in which something is shared out among a group or spread over an area.
Fraction: the result of dividing one integer by a second integer
Frequency: The number of times an event occurs; or the number of individuals Full turn: 360 degrees around a point.

Grouped data: the data (or information) given in the form of class intervals.
Hypothesis: a testable statement about the relationship between two or more variables or a proposed explanation for some observed phenomenon.

Intervals: includes all the numbers that come between two particular numbers.
Key: Keys are the meaning of the symbols used in a graph or map.
Mislead: a graph that misrepresents data.
Pictogram: Types of charts and graphs that use icons and images to represent data.
Pie chart: a graphical representation technique that displays data in a circular-shaped graph.
Proportion: if two variables $x$ and $y$ are related by an equation of the form $y=k x$, then $y$ is directly proportional to x ; it may also be said that y varies directly as x . When y is plotted against x this produces a straight line graph through the origin.

Range: The difference between the greatest value and the least value in a set of numerical data.
Sample: the practice of analyzing a subset of all data in order to uncover the meaningful information in the larger data set.
Scale: A measuring device usually consisting of points on a line with equal intervals.
Scatter graph: A graph of plotted points that show the relationship between two sets of data. Tally: A way of keeping count by drawing marks. Every fifth mark is drawn across the previous 4 marks, so you can easily see groups of 5 .

