



Year 10 Maths Learning Journey

Summer Term 1

Delving into data: Collecting, representing, and interpreting data

Core knowledge	Reference number
Understand populations and samples “Why do statisticians take samples rather than interview the whole population?”	WORKSHEET
Construct a stratified sample (H) “What fraction of the whole population is the sample size? How can you work out this fraction of each group/stratum?”	WORKSHEET
Primary and secondary data “Why might some secondary sources of data be biased?”	WORKSHEET
Construct and interpret frequency tables and frequency polygons “What’s the difference between a midpoint and an endpoint?”	WORKSHEET
Construct and interpret two-way tables (R) “How do you decide which categories to use for the rows and columns of the two-way table? Would it make a difference if the rows and columns were swapped?”	WORKSHEET
Construct and interpret line and bar charts (including composite bar charts) “What’s the difference between a multiple bar chart and a composite bar chart? Which is easier to read?”	WORKSHEET
Construct and interpret pie charts (R) “If you know the angle of a sector on a pie chart, how can we work out what fraction of the whole this represents?”	WORKSHEET
Criticism charts and graphs “Why might someone want to use a graph to make differences look bigger/smaller?”	WORKSHEET
Construct histograms (H) “Why do we use area to represent frequency rather than height?”	WORKSHEET
Interpret histograms (H) “What does the area of each bar represent?”	WORKSHEET
Find and interpret averages from a list (R) “What would you do if I asked you to find the average of a set of numbers?”	WORKSHEET
Find and interpret averages from a table (R) “What does ‘modal’ mean?”	WORKSHEET
Construct and interpret time series graphs (R) “How can we show an upward trend on a time series graph?”	WORKSHEET
Construct and interpret stem-and-leaf diagrams “How do we work out where the median is in a stem and leaf diagram?”	WORKSHEET
Construct and interpret cumulative frequency diagrams (H) “What’s the difference between a frequency polygon and a cumulative frequency polygon?”	WORKSHEET
Use cumulative frequency diagrams to find measures (H) “Why is the value for the median only an estimate?”	WORKSHEET

Construct and interpret box plots (H) “What information can we read from a box plot?”	WORKSHEET
Compare distributions using charts and measures “What does it mean if a data set has a large/small range?”	WORKSHEET
Compare distributions using complex charts and measures (H) “What’s the difference between the range and the interquartile range? Which of these measures might be affected by an outlier?”	WORKSHEET
Construct and interpret scatter graphs (R) “How can you tell if a correlation is positive or negative?”	WORKSHEET
Draw and use a line of best fit (R) “Does the line of best fit always have to go through the origin?”	WORKSHEET
Understand extrapolation “When might it be appropriate to extrapolate beyond the range of values given in a data set?”	WORKSHEET

Learning Checkpoints

LC Title	Completed	Dirt
Collecting, representing, and interpreting data		

Key Vocabulary

Population – The entirety of people/objects under consideration.

Sample – A fractional part of the population.

Representative – Where a proportion in the sample is approximately equal to the same proportion in the population.

Biased – Where the probabilities of a set of outcomes for an event are not distributed evenly or where the sample is not representative of the population.

Random – A sample is random if it is chosen with no pre-existing bias.

Proportion – A fractional part of something.

Stratified – Where sample sizes are chosen based on defined proportions within a population.

Source – A place where information can be collected.

Questionnaire – A series of questions asked to people in order to gain data about something.

Experiment – A physical trial of a theoretical concept/hypothesis.

Frequency polygon – A Graph showing frequency for defined categories.

Midpoint – The middle value in a class interval.

Endpoint – The highest value in a class interval.

Interval – A range of values for which data can be categorised.

Composite – Something comprising of two or more parts.

angle – Measure of turn.

Sector – A fractional part of a circle bound by two radii and an arc.

Radius – A line joining the Centre of a circle to it’s circumference.

Subtend – Created by or being joined between each end of a line or arc.

Histogram – Graphical representation of data organised into class intervals.

Class width – Difference between the highest value and lowest value in a class interval.

Frequency Density – Frequency divided by class width.