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| Unit 3: Interpreting and representing data | **Year 9 Road Map** |
| In this unit you will learn about number. The aims are as follows:**LG1**: Knowledge**LG2**: Application**LG3**: Skills |
| **Themes** | **Learning Goals/Outcomes/Content** |  |  |  |
| 3a) Presentation and interpretation of data | S | Use suitable data collection techniques (data to be integer and decimal values);  |  |  |  |
| S | Design and use data-collection sheets for grouped, discrete and continuous data, use inequalities for grouped data, and introduce ≤ and ≥ signs;  |  |  |  |
| S | Interpret and discuss the data; Sort, classify and tabulate data, both discrete and continuous quantitative data, and qualitative data; |  |  |  |
| S | Construct tables for time–series data;  |  |  |  |
| S | Extract data from lists and tables;  |  |  |  |
| S | Use correct notation for time, 12- and 24-hour clock; |  |  |  |
| S | Work out time taken for a journey from a timetable;  |  |  |  |
| SCE | Design and use two-way tables for discrete and grouped data;  |  |  |  |
| SCE | Use information provided to complete a two-way table; |  |  |  |
| S | Plotting coordinates in first quadrant and read graph scales in multiples;  |  |  |  |
| S | Produce: pictograms; composite bar charts; dual/comparative bar charts for categorical and ungrouped discrete data; bar-line charts; vertical line charts; line graphs; line graphs for time–series data; histograms with equal class intervals;  |  |  |  |
| S | Interpret data shown in pictograms; composite bar charts; dual/comparative bar charts; line graphs; line graphs for time–series data; histograms with equal class intervals; stem and leaf; |  |  |  |
| S | Identify the mode from a bar chart;  |  |  |  |
| SC | Recognise simple patterns, characteristics, relationships in bar charts and line graphs.  |  |  |  |
| SCE | Know which charts to use for different types of data sets; |  |  |  |
| C | Produce and interpret composite bar charts;  |  |  |  |
| C | Produce and interpret comparative and dual bar charts; |  |  |  |
| SCE | Construct pie charts for categorical data and discrete/continuous numerical data;  |  |  |  |
| SCE | Interpret simple pie charts using simple fractions and percentages; ,  and multiples of 10% sections;  |  |  |  |
| CE | From a pie chart:  |  |  |  |
| CE | find the mode;  |  |  |  |
| CE | find the total frequency;  |  |  |  |
| CE | Understand that the frequency represented by corresponding sectors in two pie charts is dependent upon the total populations represented by each of the pie charts. |  |  |  |
| CE | find the mode and the frequency represented by each sector; compare data from pie charts that represent different-sized samples; |  |  |  |
| CE | Produce and interpret frequency polygons for grouped data: from frequency polygons, read off frequency values, compare distributions, calculate total population, mean, estimate greatest and least possible values (and range); |  |  |  |
| CE | Produce frequency diagrams for grouped discrete data: read off frequency values, calculate total population, find greatest and least values;  |  |  |  |
| CE | Produce histograms with equal class intervals:  |  |  |  |
| CE | estimate the median from a histogram with equal class width or any other information, such as the number of people in a given interval;  |  |  |  |
| CE | Produce line graphs: read off frequency values, calculate total population, find greatest and least values;  |  |  |  |
| CE | Construct and interpret time–series graphs, comment on trends; |  |  |  |
| CE | Recognise simple patterns, characteristics relationships in bar charts, line graphs and frequency polygons.  |  |  |  |
| SCE | Draw scatter graphs;  |  |  |  |
| SCE | Interpret points on a scatter graph;  |  |  |  |
| SCE | Identify outliers and ignore them on scatter graphs;  |  |  |  |
| CE | Draw the line of best fit on a scatter diagram by eye, and understand what it represents; |  |  |  |
| CE | Use the line of best fit make predictions; interpolate and extrapolate apparent trends whilst knowing the dangers of so doing;  |  |  |  |
| CE | Distinguish between positive, negative and no correlation using lines of best fit;  |  |  |  |
| CE | Interpret scatter graphs in terms of the relationship between two variables;  |  |  |  |
| CE | Interpret correlation in terms of the problem;  |  |  |  |
| CE | Understand that correlation does not imply causality;  |  |  |  |
| CE | State how reliable their predictions are, i.e. not reliable if extrapolated. |  |  |  |
| CE | Explain an isolated point on a scatter graph;  |  |  |  |
| 3b) Averages and range |  SCE | Calculate mean and range, find median and mode from small data set;  |  |  |  |
| SCE | Use a spreadsheet to calculate mean and range, and find median and mode;  |  |  |  |
| CE | Recognise the advantages and disadvantages between measures of average;  |  |  |  |
| SCE | Construct and interpret stem and leaf diagrams (including back-to-back diagrams): find the mode, median, range, as well as the greatest and least values from stem and leaf diagrams, and compare two distributions from stem and leaf diagrams (mode, median, range);  |  |  |  |
| SCE | Calculate the mean, mode, median and range from a frequency table (discrete data); |  |  |  |
| SCE | Construct and interpret grouped frequency tables for continuous data: for grouped data, find the interval which contains the median and the modal class;  |  |  |  |
| CE | estimate the mean with grouped data; understand that the expression ‘estimate’ will be used where appropriate, when finding the mean of grouped data using mid-interval values. |  |  |  |
| CE | Compare the mean and range of two distributions, or median or mode as appropriate; |  |  |  |