



Information Handling

Fife Numeracy and Mathematics Overview for Information Handling:

- Provides a **brief overview** of progression within Information Handling
- **Aligns with the *Fife Information Handling Progression Pathway***
- **Should be used in conjunction with the *Fife Numeracy and Mathematics Progression Pathway*** which exemplifies how to plan for Conceptual Understanding in Numeracy
- **Should not be used** as a standalone document.
- **Can be used** as part of **professional dialogue** in relation to **Teacher Professional Judgement**

	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Data and Analysis key vocabulary: analysis, average, bar chart, bias, class intervals, collection (data collection), compound bar graph, continuous data, correlation, data, database, discrete data, distribution, graphs, grouped data, histogram, interpretation, line graph, line of best fit, mean, median, misleading data, mode, pie chart, pictogram, primary data, reliability, sample size, sampling, scatter graph, secondary data, spreadsheet, statistical diagrams, statistical language, stem-and-leaf diagram, surveys, tables, trends, Venn diagram							
Data and Analysis	<ul style="list-style-type: none"> I can ensure that data is displayed in a way that can be easily interpreted by others (including bar graphs, line graph, pie chart, diagrams) I can explore the different ways in which data can be collected. I can enter data into databases with predefined fields. I can enter data into a prepopulated spreadsheet. I can interpret and report on information provided in simple tree diagrams. I can comment sensibly on how well questions were answered by the data collected and suggest how it could be improved. I can explore the effect of incorrect use of scale (misleading scale) I can explore the effect of poor sampling (e.g. only asking a specific group of people questions) I can display measurements in tables with class intervals (e.g. pupil heights) 	<ul style="list-style-type: none"> I can create simple spreadsheets. I can explore the difference in appearances of graphs by changing the scale. I can use fractions and percentage to summarise data (e.g. half the children had a cat). I can explore misleading statistics in real life. I can select the most suitable way of collecting data for a given task. I can create, interpret, and report on information provided in tables and bar graphs where the data might be grouped into simple intervals. Interpret and report information provided in complex Venn diagrams that have more than one circle. I can interpret and report on information in line graphs describing the trends seen in data. I can comment sensibly on how well my own collected data answers the original question. I can interpret histograms for grouped data including where the data on the axis must be read between the scale numbers. I can interpret pictograms where one unit represents a different data value (e.g. one pear = 5 people) 	<ul style="list-style-type: none"> I can understand that different types of graphs are used for different purposes. I can identify and sort different types of data. I can understand the difference between primary and secondary data. I can collect simple data through surveys or experiments. I can begin to consider how data is collected. I can organise data using tables and simple charts. I can display data using bar charts, line graphs and simple pie charts. I can use technology to record and display data. I can read and interpret information from simple graphs and charts. I can describe simple trends in data. 	<ul style="list-style-type: none"> I can choose appropriate methods to collect data for a survey or experiment. I can explain the difference between primary and secondary data and select appropriate sources. I can begin to consider sample size, bias and reliability when collecting data. I can design surveys and collect data systematically. I can organise and display data using a range of graphs and charts. I can use spreadsheets and simple formulae to organise and present data. I can create and use simple databases. I can interpret data from a range of graphs and diagrams. I can read and interpret information from mathematical language. I can begin to question how data is presented and recognise simple bias. 	<ul style="list-style-type: none"> I can source information or collect data, including through the use of technology. I can select appropriate and representative samples to reduce bias. I can determine whether data is reliable or misleading by considering sample size, source, and method. I can organise and display data in a variety of ways, including compound bar graphs, line graphs, scatter graphs, stem-and-leaf diagrams, and pie charts. I can use technology effectively to present and analyse data. I can interpret data and draw appropriate conclusions. I can analyse data and justify my conclusions. I can describe trends clearly using appropriate mathematical language. I can evaluate how data has been presented, including scale and method, and explain whether it is appropriate. 	<ul style="list-style-type: none"> I can explore different types of statistical diagrams and understand their purposes. I can describe the advantages and disadvantages of different ways of presenting data. I can interpret raw data and simple graphical data. I can recognise different types of data, including discrete and continuous data. I can calculate the mean, median, mode, and range of a data set. I can use appropriate charts to display simple sets of data. 	<ul style="list-style-type: none"> I can select appropriate statistical diagrams to display different types of data. I can explain my choice of diagram when presenting data. I can interpret and compare two or more sets of data. I can use a range of charts to display discrete, continuous, and grouped data. I can describe relationships in data using statistical language, including correlation. I can identify positive and negative correlations in scatter graphs. I can draw and interpret a line of best fit. I can calculate and interpret the mean, median, mode, and range in context. I can explain how different averages can affect interpretation of data. 	<ul style="list-style-type: none"> I can interpret raw and graphical data accurately. I can use statistical language, including correlation, to describe relationships. I can calculate the mean, median, mode, and range of a data set. I can select the most appropriate statistical diagram to display a given data set. I can justify my choice of statistical diagram. I can use different types of charts to display discrete, continuous, and grouped data appropriately. I can compare data sets and draw valid conclusions based on evidence. I can analyse data and explain my findings clearly.
	Second		Third			Fourth		
	Phase 6	Phase 7	Phase 8	Phase 9	Phase 10	Phase 11	Phase 12	Phase 13
	Ideas of chance and uncertainty key vocabulary: certain, chance, data, decimal, dependent events, equally likely, event, expected outcome, experimental probability, fairness, frequency, fraction, independent events, likelihood, mutually exclusive outcomes, outcome, percentage, prediction, probability, probability scale, random, reliability, repeated trials, risk, sample space, theoretical probability, two-way table							
Ideas of Chance and Uncertainty	<ul style="list-style-type: none"> I can list all possible outcomes for straightforward situations. (e.g. If I can choose two scoops of ice cream for my cone what are my options) I can use a simple probability scale to record likelihood. I can understand that certainty relates to events that must happen and events that cannot happen) I can use available data to order things from most likely to least likely. (e.g. using rainfall data to order Scottish cities from least likely to have rain in July to most likely.) I can order outcomes for a single random action from least to most likely by thinking about (i.e. analysing) the situation, e.g. for a die with the faces 1, 1, 2, 2, 2, 3, state that a 2 is most likely, 1 is next and 3 is least likely) I can use data to predict the likelihood of the outcome of a simple experiment, justifying reasonableness. I can order probability devices from the one most likely to the one least likely to produce an outcome (e.g. order three spinners with different proportions shaded yellow from the one most likely to the one least likely to produce a yellow result) 	<ul style="list-style-type: none"> I can analyse and explain results of simple experiments involving chance. e.g. When creating a tombola what are the chances that the customer will win a prize? I can plan and conduct repeated simple experiments of chance and record findings to determine which outcome is likely. I can use probability to explain fairness in mathematical terms. I can use language of probability to describe the likelihood of a simple event. e.g. equal chance, 50/50, a one in three chance. I can design a probability device such as a die, spinner, or a bag of coloured beads to produce a specified order of probability. 	<ul style="list-style-type: none"> I can understand that probability describes how likely an event is to happen. I can express probability using simple fractions. I can recognise probability on a scale from 0 to 1. I can describe probability using simple language such as certain, likely, or impossible. I can identify all possible outcomes for a simple event. I can explore probability through practical experiments. I can understand that repeating an experiment can affect the results. 	<ul style="list-style-type: none"> I can express probability as a fraction, decimal, or percentage. I can calculate the probability of simple events happening or not happening. I can identify all possible outcomes for one or two-stage events. I can understand the difference between experimental and theoretical probability. I can explore how increasing the number of trials improves reliability. I can calculate expected outcomes from a given probability. I can begin to consider non-numerical factors when making decisions involving probability. I can select appropriate methods to calculate probability. 	<ul style="list-style-type: none"> I can use the probability scale from 0 to 1 to express probability as a fraction, decimal, or percentage. I can demonstrate the relationship between the frequency of an event and its probability. I can calculate the probability of simple events. I can identify all mutually exclusive outcomes of a single event and calculate their probabilities. I can investigate real-life situations involving probability and make decisions based on likelihood and consequences. I can apply my understanding of probability to interpret outcomes and justify decisions. 	<ul style="list-style-type: none"> I can identify the difference between independent and dependent events. I can explore and describe the difference between theoretical and experimental probability. I can calculate simple theoretical probabilities. I can carry out experiments to calculate experimental probabilities. I can compare theoretical and experimental results. I can calculate expected outcomes from a given probability. 	<ul style="list-style-type: none"> I can calculate the probability of independent events. I can calculate the probability of dependent events. I can calculate both theoretical and experimental probabilities. I can explain why theoretical and experimental probabilities may differ. I can use two-way tables to calculate probabilities of events. I can determine expected occurrences of events in different contexts. I can begin to apply probability to make predictions. 	<ul style="list-style-type: none"> I can determine the expected occurrences of an event. I can apply my knowledge of probability to make predictions. I can assess risk and make informed decisions in real-life contexts. I can calculate probabilities of independent and dependent events accurately. I can use probability to justify decisions and predictions. I can interpret probability in real-life situations and explain outcomes clearly.