ESF Data Handling

Phase 1		Phase 2		Phase 3		Phase 4
K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

IBO Overall Expectations	Learners will develop an understanding of how the collection and organization of information helps to make sense of the world. They will sort, describe and label objects by attributes and represent information in graphs including pictographs and tally marks. The learners will discuss chance in daily events.	Learners will understand how information can be expressed as organized and structured data and that this can occur in a range of ways. They will collect and represent data in different types of graphs, interpreting the resulting information for the purpose of answering questions. The learners will develop an understanding that some events in daily life are more likely to happen than others and they will identify and describe likelihood using appropriate vocabulary.	Learners will continue to collect, organize, display and analyse data, developing an understanding of how different graphs highlight different aspects of data more efficiently. They will understand that scale can represent different quantities in graphs and that mode can be used to summarize a set of data. The learners will make the connection that probability is based on experimental events and can be expressed numerically.	Learners will collect, organize and display data for the purposes of valid interpretation and communication. They will be able to use the mode, median, mean and range to summarize a set of data. They will create and manipulate an electronic database for their own purposes, including setting up spreadsheets and using simple formulas to create graphs. Learners will understand that probability can be expressed on a scale (0–1 or 0%–100%) and that the probability of an event can be predicted theoretically.
IBO Conceptual Understanding	We collect information to make sense of the world around us. Organizing objects and events helps us to solve problems. Events in daily life involve chance.	Information can be expressed as organized and structured data. Objects and events can be organized in different ways. Some events in daily life are more likely to happen than others.	Data can be collected, organized, displayed and analysed in different ways. Different graph forms highlight different aspects of data more efficiently.	Data can be presented effectively for valid interpretation and communication. Range, mode, median and mean can be used to analyse statistical data. Probability can be represented on a scale between 0–1 or 0%–100%. The probability of an event can be predicted theoretically.

	Phase 1		Phase 2		Phase 3			Phase 4
	K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Data Handling	Understand that information can be collected in different ways Answer yes/no questions to interpret data	Collect, organize and represent data (including pictograms, tally marks) Answer direct/ closed questions to interpret data for example how many people celebrate their birthday in January?	Collect, organize and represent data (including pictograms, tally marks and living graphs using real objects and people) Interpret data where one object or drawing represents one value Interpret data by comparing quantities for example, more, fewer, less than, greater than	Collect, organize and represent data (including pictograms, bar graphs, Venn Diagrams, tally charts and living graphs using real objects and people) Interpret data and draw conclusions where one object or symbol can represent many data values for example, one dot equals 10 votes	Collect, organize and represent data (including bar graphs, pictograms, Venn diagrams and tally charts) Interpret and draw conclusions by comparing more than one data representation	Collect, organize and represent data (including bar and line graphs, 3 ring Venn diagrams and Carroll diagrams) where one object or symbol can represent many data values Interpret data and draw conclusions using a variety of scales Describe the advantages and disadvantages of data representation forms	Collect, organize and represent data (including bar and line graphs, 3 ring Venn diagrams, pie charts, Carroll diagrams and tree diagrams) where one object or symbol can represent many data values Interpret and draw conclusions from data using range, scale and mode on graphs Describe the advantages and disadvantages of data representation from answering and suggesting questions that can be answered	Collect, organize and represents statistical data (including bar, pie, line graphs and tree diagrams) Interpret and draw conclusions from statistical data using range, mode, median and mean and scale on graphs Interpret and compare a range of data displays, including side-by-side column graphs Identify potentially misleading data representations with consideration of purpose

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Probability	Discuss familiar events involving chance	Discuss familiar events involving chance	Identify familiar events involving chance and describe them using everyday language such as 'will happen', 'won't happen' or 'might happen'	Identify activities and familiar events that involve chance and describe them using appropriate vocabulary for example 'likely' or 'unlikely'	Describe likelihood of activities and events using appropriate vocabulary for example 'likely', 'unlikely', 'certain' 'impossible' Identify and describe possible outcomes and recognise variation in results of chance experiments	Describe and order likelihood of activities and events using appropriate vocabulary for example 'likely', 'unlikely', 'certain' 'impossible' Identify familiar events that are dependent and independent of the occurrence of the other	Represent probabilities ranging from 0-1 using fractions Identify outcomes of chance experiments including equally likely outcomes Identify situations that are mathematically fair or unfair	Describe and order probability using fractions, decimals and percentages Explain why the theoretical probability of an event might differ from experimental probability through conducting a chance experiment Understand that a situation with limited options will result in a finite number of possible outcomes (possible combinations, tree diagram) Understand mathematical fairness and identify fair and unfair situations