Mathematics: Data Grade Ladder

Year 7	Year 8	Year 9	IGCSE: Year 10 and 11
		9A*	**9A* / 8A***
		- Understand how different methods of sampling and different sample sizes may affect the reliability of conclusions drawn. - Select and justify a sample and method to investigate a population. - Recognise when and how to work with probabilities associated with independent mutually exclusive events.	- Interpret problems involving conditional probability using Venn diagrams, tree diagrams and two way tables. - Use cumulative frequency curves to determine percentiles and probabilities.
	9A*	**8A***	**8A / 7A**
	- Determine the modal class and estimate the mean, median, and range of sets of grouped data, - Select the statistic most appropriate to their line of enquiry. - Understand and apply the addition of probabilities for mutually exclusive events. - Understand the difference between correlation and causation.	- Determine the modal class and estimate the mean, median, and range of sets of grouped data, - Select the statistic most appropriate to their line of enquiry. - Understand and apply the addition of probabilities for mutually exclusive events. - Understand the difference between correlation and causation.	- Recognise when and how to work with probabilities associated with independent mutually exclusive events. - Draw and interpret tree diagrams and venn diagrams to find probabilities. - Draw histograms and work backwards to find frequencies - Interpret histograms and estimate answers

9A*	8A*	8A / 7A	6B / 5B
- Construct and interpret bar charts covering the range of a continuous variable. - Compare two distributions, using the range and one of the measures of average. - Construct and interpret pie charts.	- Test an issue by designing and using appropriate methods to collect data and draw conclusions from the data. - Understand and use relative frequency as an estimate of probability and use this to compare outcomes of experiments. - Construct and interpret bar charts covering the range of a continuous variable. - Understand the meaning of exhaustive and mutually exclusive events - Know the sum of all probabilities for an event and how to find the probability of something not happening. - With a combination of two independent experiments, identify all the outcomes and calculate probabilities in the case of equally likely outcomes.	- Test an issue by designing and using appropriate methods to collect data and draw conclusions from the data. - Understand and use relative frequency as an estimate of probability and use this to compare outcomes of experiments. - Construct and interpret bar charts covering the range of a continuous variable. - Understand the meaning of exhaustive and mutually exclusive events - Know the sum of all probabilities for an event and how to find the probability of something not happening. - With a combination of two independent experiments, identify all the outcomes and calculate probabilities in the case of equally likely outcomes.	- Determine the modal class and estimate the mean, median, and range of sets of grouped data. - Draw and interpret cumulative frequency graphs and box and whisker plots. - Construct histograms covering the range of a continuous variable of equal class widths. - Understand and apply the addition of probabilities for mutually exclusive events. - Understand the difference between correlation and causation. - Interpret scatter graphs and use the line of best fit to predict.
8A*	**8A / 7A**	**6B / 5B**	**5C / 4C**
- Choose appropriate equal class intervals over a suitable range to create frequency tables. - Distinguish between, and find,	- Choose appropriate class intervals over a suitable range to create frequency tables. - Distinguish between, and find,	- Choose appropriate class intervals over a suitable range to create frequency tables. - Distinguish between, and find,	- Draw conclusions from the data using averages. - Understand and use relative frequency as an estimate of

the mean, median and mode of discrete data.	the mean, median and mode of discrete data. ● Compare two distributions, using the range and one of the measures of average. ● Construct and interpret pie charts. ● Interpret scatter diagrams and have a basic understanding of correlation. ● Know how to find the probability of outcomes if they are equally likely. ● Understand and use 0 and 1 as the limits of the probability scale.	the mean, median and mode of discrete data. ● Compare two distributions, using the range and one of the measures of average. ● Construct and interpret pie charts. ● Interpret scatter diagrams and have a basic understanding of correlation. ● Know how to find the probability of outcomes if they are equally likely. ● Understand and use 0 and 1 as the limits of the probability scale.	probability and use this to compare outcomes of experiments. ● Understand that the probability of an event not occurring = 1 – the probability of the event occurring. ● When dealing with a combination of two independent experiments, they identify all the outcomes and calculate probabilities in the case of equally likely outcomes. ● Draw scatter graphs and discuss correlation in simple terms.
8A / 7A	**6B / 5B**	**5C / 4C**	**3D**
● Design and use a data collection sheet and interpret the results. ● Calculate and use the mean and range of discrete data. ● Construct and interpret simple line graphs. ● Interpret graphs and diagrams, including pie charts, and draw conclusions.	● Design and use a data collection sheet and interpret the results. ● Calculate and use the mean and range of discrete data. ● Construct and interpret simple line graphs. ● Interpret graphs and diagrams, including pie charts, and draw conclusions. ● Place events in order of 'likelihood' and use appropriate words to identify chance, such as fifty-fifty and evens.	● Design and use a data collection sheet and interpret the results. ● Calculate and use the mean and range of discrete data. ● Construct and interpret simple line graphs. ● Interpret graphs and diagrams, including pie charts, and draw conclusions. ● Place events in order of 'likelihood' and use appropriate words to identify chance, such as fifty-fifty and evens.	● Choose appropriate class intervals over a suitable range to create frequency tables. ● Distinguish between, and find, the mean, median and mode of discrete data. ● Compare two distributions, using the range and one of the measures of average. ● Construct and interpret pie charts. ● Interpret scatter diagrams and have a basic understanding of correlation.

			- Know how to find the probability of outcomes if they are equally likely. - Understand and use 0 and 1 as the limits of the probability scale
6B / 5B	**5C / 4C**	**3D**	**3E / 2E**
- Collect, group and order discrete data with given class intervals. - Represent and interpret data using a range of graphs, tables and diagrams. - Construct and interpret pictograms where the symbol may represent a group of units.	- Collect, group and order discrete data with given class intervals. - Represent and interpret data using a range of graphs, tables and diagrams. - Construct and interpret pictograms where the symbol may represent a group of units. - Understand and use simple vocabulary associated with probability, such as: certain, uncertain, impossible, likely, unlikely and fair.	- Collect, group and order discrete data with given class intervals. - Represent and interpret data using a range of graphs, tables and diagrams. - Construct and interpret pictograms where the symbol may represent a group of units. - Understand and use simple vocabulary associated with probability, such as: certain, uncertain, impossible, likely, unlikely and fair.	- Design and use a data collection sheet and interpret the results. - Calculate and use the mean and range of discrete data. - Construct and interpret simple line graphs. - Interpret graphs and diagrams, including pie charts, and draw conclusions. - Place events in order of 'likelihood' and use appropriate words to identify chance, such as fifty-fifty and evens.
5C / 4C	**3D**	**3E / 2E**	**2F / 1F**
- Interpret information presented in simple tables and lists. - Collect, display and interpret data in pictograms and bar charts in order to communicate information.	- Interpret information presented in simple tables and lists. - Collect, display and interpret data in pictograms and bar charts in order to communicate information.	- Interpret information presented in simple tables and lists. - Collect, display and interpret data in pictograms and bar charts in order to communicate information.	- Collect, group and order discrete data with given class intervals. - Represent and interpret data using a range of graphs, tables and diagrams. - Construct and interpret pictograms where the symbol

			may represent a group of units. ● Understand and use simple vocabulary associated with probability, such as: certain, uncertain, impossible, likely, unlikely and fair.
3D	**3E / 2E**		**1G**
● Sort and classify objects using two criteria. ● Collect information and record it in simple tables, block graphs and diagrams. ● Interpret information.	● Sort and classify objects using two criteria. ● Collect information and record it in simple tables, block graphs and diagrams. ● Interpret information.		● Interpret information presented in simple tables and lists. ● Collect, display and interpret data in pictograms and bar charts in order to communicate information.
3E / 2E			**U**
● Sort and classify objects and talk about the criterion they have used. ● Record their work using real objects or drawings.			Learners lack the basic foundations in order to calculate and solve problems involving data and probability.