

Development and progression in mathematics: data and analysis; and ideas of chance and uncertainty

EARLY	FIRST	SECOND	THIRD	FOURTH
LEARNERS CONTINUALLY DEVELOP, REINFORCE AND EXTEND THEIR UNDERSTANDING OF DATA AND ANALYSIS THROUGH:				
collecting and organising information by matching, sorting, grouping and, classifying objects	<p>developing an understanding of one-to-one correspondence by collecting and displaying material</p> <p>organising and classifying in diagrams (such as Venn diagrams) and tables</p>	<p>using a variety of methods to collect data through using observations, surveys, research and experiments</p> <p>discussing how methods of collecting information may affect the data collected and the conclusions drawn or predictions made, for example through the impact of misleading data</p>	<p>sourcing from information that is presented in a range of ways</p> <p>interpreting, describing and discussing important features of a set of data and comparing related data sets, with a focus on how the data are distributed</p> <p>understanding discrete (a limited or finite number of possible values such as days of the week) data and continuous data (data that can take any value within an appropriate range e.g. temperature)</p>	<p>finding, using, and interpreting measures of centre and spread, including mean, median, mode and range of numbers</p>
creating pictorial (3-dimensional and 2-dimensional) displays from information they have collected	displaying information clearly and accurately, using simple tables, charts, diagrams and graphs	representing data using suitable scales, and choosing appropriately from an extended range of tables, charts, diagrams, plots and graphs	selecting, creating, and using the most appropriate graphical representations for data	discussing and understanding the relationship between data sets and their graphical representations
identifying and interpreting, for example: How many are there? Which is highest? Lowest? Most? Least?	describing important features of the information collected	comparing different displays of the same data and comparing key features of each	proposing and justifying conclusions and making predictions based on data collected	using observations about differences between samples taken from two or more populations to make conjectures about those populations; making conjectures to devise further questions and plan new studies to answer them

EARLY	FIRST	SECOND	THIRD	FOURTH
<p>LEARNERS CONTINUALLY DEVELOP, REINFORCE AND EXTEND THEIR UNDERSTANDING OF IDEAS OF CHANCE AND UNCERTAINTY THROUGH:</p>				
<p>becoming aware of how the vocabulary of chance (such as likely and unlikely, never, always) is used in daily routines</p>	<p>understanding concepts such as likely, probable, unlikely; certain, never; possible and impossible and using this vocabulary in daily life</p>	<p>assigning numerical values to the likelihood of the occurrence of simple events</p> <p>understanding, for example:</p> <ul style="list-style-type: none"> • equal chance • fifty-fifty • one in two, two in three, etc • percentage chance <p>becoming aware of how the implications of chance are used in daily routines, decision making and the media</p>	<p>understanding and using the probability scale 0-1 in simple experiments</p> <p>understanding that the probability of an event not happening is (1 minus the probability of it occurring), for example the probability of throwing a 1 on a die is 1/6, the probability of not throwing a 1 is (1 - 1/6) i.e. 5/6</p> <p>identifying all possible mutually exclusive outcomes of a single event and assigning numerical values to the probability of each outcome</p> <p>using practical activities to develop an understanding of the link between the frequency of an event occurring and the probability of it occurring</p> <p>investigating real-life situations which involve making decisions based on the likelihood of events occurring</p> <p>beginning to understand the concept of a 'random' outcome (i.e. equal probability of an occurrence happening)</p> <p>discussing how methods of collecting information may affect the nature of the data collected and the conclusions drawn or predictions made, e.g. effects of sample size or 'bias', robustness of data</p>	<p>identifying all possible mutually exclusive outcomes of two successive events and assigning numerical values to each compound event (i.e. the combination of successive events)</p> <p>identifying the probabilities for sequences of events for which listing would be impractical</p> <p>investigating real-life situations which involve making decisions based on the likelihood of events occurring and exploring the implications of possible decisions.</p>