Primary Mathematics Curriculum

Data

Children should be given opportunities to demonstrate how the knowledge and skills gained in this strand can be used to link, reinforce and progress learning across the other four interconnected strands.

	a The learner	b The learner	c The learner	d The learner	e The learner	f The learner	g The learner	h The learner	i The learner	j The learner	k The learner
Elements	**Data**										
Understanding and Connecting	Develops an awareness of properties of simple data sets.	Explores data displays found in the immediate environment and in other areas of the curriculum. Collects data of personal relevance.	Reads and explains the information conveyed in various categorical and numerical displays.	Explores and formulates possible research topics and questions for data collection relevant to themselves or their surroundings (For example: hair colour, number of pets).	Explores and recognises different ways of collecting and representing data. Uses simple tallying for recording of data. Recognises that data symbols hold and/ or represent information or numerical value.	Explores and recognises the relationship between different ways of representing same data (For example: using tables, charts and graphs). Recognises and identifies where data symbols represent multiple values.	Uses data as evidence to support ideas, arguments, decisions and conclusions drawn. Identifies the most common outcome as the mode.	Explores and establishes how to best handle data for a given purpose. Identifies and disregards surplus information. Explores the median as the value in the middle of a data set. Investigates the range (i.e. the measure used to capture variability or spread of the data.) of a data set.	Explores the different ways data can be classified and distinguished including numerical / categorical; primary/secondary. Investigates and calculates the mean (i.e. the fair share measure of centre that takes into account all data values collected) of given quantitative data.	Distinguishes between a census and a sample from a population. Uses graphs to examine and analyse the shape (Shape can be used to describe the different types of graphs. For example: symmetric, skewed or bell shaped) of a data set.	Explores the relationship between a census, a representative sample, sample size, and a population. Recognises that samples can be described and compared using shape, measures of centre and variability.

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Elements	**Data**										
Communicating	Explores the different ways data sets can be presented.	Describes and/or labels the attributes of different objects and sets. Poses and responds to questions and/or problems that relate to the attributes of data sets.	Notice and discuss data in the direct environment Asks questions and discusses opportunities for collecting data.	Represents and displays data gathered using objects, pictures or simple graphs. Explores and devises questions and statements based on data displays.	Reads, interprets, poses questions about and discusses data displays such as concrete and visual charts (For example: pictograms) and graphs (For example: block graphs).	Represents and displays data using simple tables, graphs and charts, and interprets results and draws conclusions. Designs symbols to represent multiple information or values on a data display.	Designs, uses and interprets different displays to represent data. Uses symbols as part of data displays to convey information or numerical value(s).	Establishes how to best record and represent data for a given purposes, including the use of appropriate scales and legends.	Represents data using various displays (For example: multiple bar charts, dot plots, line graphs and histograms) to support interpretation and drawing of conclusions. Compares similarities and differences between two related sets of data, using a variety of strategies (For example: shape, graphs and measures of centre, variability).	Represents data using an increasing variety of tools (For example: using graph paper, spread-sheets, statistical software). Inputs data into software and compares the effectiveness of different types of graphs that can be generated. Discusses, describes and compares data sets by referring to distribution, shape, centre (mean, median, mode) and variability (range).	Takes account of the shape of data, measures of centre and other relevant calculations to present an analysis of data. Describes their understanding of the whole investigative cycle.

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Elements					**Data**						
Reasoning	Engages with a range of sorting and/ or classifying activities. Attends to attributes of objects in a data set.	Sorts and classifies objects in a data set according to at least one attribute (For example: red shapes). Justifies classifications.	Sorts and classifies objects and sets according to multiple attributes. Re-sorts data sets according to different attributes and justifies.	Explores the potential for data displays to convey large volumes of information. Explains and makes simple inferences based on data gathered within an investigation.	Differentiates information as useful or surplus to address questions of interest. Listens to others' interpretations of data investigations and compare with own interpretations.	Critically analyses the nature and objectivity of simple data sets. Checks and evaluates the accuracy and reasonableness of own methods of data collection and representations. Refines own methods.	Confirms or refutes whether the statements made by others about data displays are consistent with the display and/ or evidence. Uses data displays to generate new hypotheses and questions for investigation. Recognises proportionality and how the distribution of data is organised in a display.	Justifies why a set of data is collected and represented in the way chosen. Generates scales appropriate to the magnitude, range and distribution of the data. Evaluates the methods used by peers in representing data.	Reasons about what the measures of centre (mean and median) communicate about the data collected within an investigation. Justifies conclusions using observations and measurements. Deduces and infers a range of contextual information from patterns of data.	Investigates the different insights/ information that the mean and median give about the distribution. Critically analyses the nature and objectivity of complex data representations. Makes inferences and convincing arguments that are based on the analysis of data displays.	Investigates bias in data collection methods and presentation. Establishes, through investigation, a) the representativeness of the sample, b) the rigour of the findings and c) the reliability of the data provided. Justifies which measure of centre is most appropriate.
Applying and Problem-Solving	Sorts and/or classifies real-life data.	Interprets and matches related data sets or collections of data (For example: knives and forks, pairs of socks)	Collects data by asking simple questions of each other and gathering responses. Displays and contrasts data in personal ways.	Applies an investigative cycle of problem-posing, planning, data gathering, representation, analysis and conclusion. Works with information collected about themselves or peers as a data sample.	Selects and applies appropriate methods of collecting, recording and representing data in different problem-solving scenarios.	Applies an investigative cycle of problem-posing, planning, data gathering, representation, analysis and conclusion. Compares two data values and/or samples involving themselves.	Poses a problem or question related to themselves, their environment, issues in their school or community. Collects data to answer to questions by conducting a survey, making observation or a simple experiment. Makes deductions and inferences from existing information provided in data displays.	Applies an investigative cycle of problem-posing, planning, data gathering, representation, analysis and conclusion. Compares multiple data samples involving themselves.	Solves problems based on secondary data such as climate, the environment, sports results and media headlines.	Applies an appropriate investigation cycle of problem-posing, planning, data gathering, representation, analysis and conclusion. Compares multiple data samples in meaningful contexts.	Synthesises and analyses complex data for a range of purposes and problems. Tests the appropriateness of measures of centre to solve a data related problem.