National Curriculum Links

Links to the National Curriculum in England

# Chapters 26–27: Handling data and comparing sets of data

Pupils should be taught to:

## Year 2

* interpret and construct simple pictograms, tally charts, block diagrams and simple tables
* ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
* ask and answer questions about totalling and comparing categorical data

## Year 3

* interpret and present data using bar charts, pictograms and tables
* solve one-step and two-step questions [e.g., ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms and tables

## Year 4

* interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
* solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

## Year 5

* solve comparison, sum and difference problems using information presented in a line graph
* complete, read and interpret information in tables, including timetables

## Year 6

* interpret and construct pie charts and line graphs and use these to solve problems
* calculate and interpret the mean as an average

Links to Curriculum for Excellence in Numeracy and Mathematics in Scotland

# Chapters 26–27: Handling data and comparing sets of data

## Early

***Experiences and outcomes:*** *I can collect objects and ask questions to gather information, organizing and displaying my findings in different ways.* ***MNU 0-20a***

*I can match objects, and sort using my own and others’ criteria, sharing my ideas with others.* ***MNU 0-20b***

*I can use the signs and charts around me for information, helping me plan and make choices and decisions in my daily life.* ***MNU 0-20c***

***Benchmark:***

* asks simple questions to collect data for a specific purpose
* collects and organizes objects for a specific purpose
* applies counting skills to ask and answer questions and makes relevant choices and decisions based on the data
* contributes to concrete or pictorial displays where one object or drawing represents one data value, using digital technologies as appropriate
* uses knowledge of colour, shape, size and other properties to match and sort items in a variety of different ways
* interprets simple graphs, charts and signs and demonstrates how they support planning, choices and decision making

## First

***Experiences and outcomes:*** *I have explored a variety of ways in which data is presented and can ask and answer questions about the information it contains.* ***MNU 1-20a***

*I have used a range of ways to collect information and can sort it in a logical, organized and imaginative way using my own and others’ criteria.* ***MNU 1-20b***

***Benchmark:***

* asks and answers questions to extract key information from a variety of data sets including charts, diagrams, bar graphs and tables
* selects and uses the most appropriate way to gather and sort data for a given purpose, for example, a survey, questionnaire or group tallies
* uses a variety of different methods, including the use of digital technologies, to display data, for example, as block graphs, bar graphs, tables, Carroll diagrams and Venn diagrams
* includes a suitable title, simple labelling on both axes and an appropriate scale where one unit represents more than one data value in graphs

## Second

***Experiences and outcomes:*** *Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognizing that the presentation may be misleading.* ***MNU 2-20a***

*I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organize and communicate the results in an appropriate way.* ***MNU 2-20b***

***Benchmark:***

* devises ways of collecting data in the most suitable way for the given task
* collects, organizes and displays data accurately in a variety of ways including through the use of digital technologies, for example, creating surveys, tables, bar graphs, line graphs, frequency tables, simple pie charts and spreadsheets
* analyses, interprets and draws conclusions from a variety of data
* draws conclusions about the reliability of data taking into account, for example, the author, the audience, the scale and sample size used
* displays data appropriately making effective use of technology and chooses a suitable scale when creating graphs

Links to Curriculum for Wales: Programme of Study for Mathematics, Key Stages 2–4

# Chapters 26–27: Handling data and comparing sets of data

Learners should be taught to:

## Year 1

* sort and classify objects using more than one criterion
* collect information by voting or sorting and represent it in pictures, objects or drawings
* make lists and tables based on data collected

## Year 2

* sort and classify objects using more than two criterion
* gather and record data from:
	+ lists and tables
	+ diagrams
	+ block graphs
	+ pictograms where the symbol represents one unit
* extract and interpret information from lists, tables, diagrams and graphs
* order and identify patterns in combinations of mathematical objects, including number and number tables, and discuss the relationship between them

## Years 3 and 4

* represent data using lists, tally charts, tables and diagrams – bar charts and bar line graphs labelled in 2s, 5s and 10s – pictograms where one symbol represents more than one unit using a key – Venn and Carroll diagrams
* extract and interpret information from charts, timetables, diagrams and graphs

## Years 5 and 6

* represent data using lists, tally charts, tables, diagrams and frequency tables – bar charts, grouped data charts, line graphs and conversion graphs
* extract and interpret information from an increasing range of diagrams, timetables and graphs (including pie charts)
* use mean, median, mode and range to describe a data set

Australian Curriculum for Mathematics

This maps entries in the **Australian Mathematics Curriculum (from Foundation Stage to Year 7)** to the content of chapters of Haylock, *Mathematics Explained for Primary Teachers*, 6th edition.

# Chapters 26–27: Handling data and comparing sets of data

## Foundation Year

* Answer yes/no questions to collect information

## Year 1

* Choose simple questions and gather responses
* Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays

## Year 2

* Identify a question of interest based on one categorical variable. Gather data relevant to the question
* Collect, check and classify data
* Create displays of data using lists, table and picture graphs and interpret them

## Year 3

* Identify questions or issues for categorical variables
* Identify data sources and plan methods of data collection and recording
* Collect data, organize into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies
* Interpret and compare data displays

## Year 4

* Select and trial methods for data collection, including survey questions and recording sheets
* Construct suitable data displays, with and without the use of digital technologies, from given or collected data. Include tables, column graphs and picture graphs where one picture can represent many data values
* Evaluate the effectiveness of different displays in illustrating data features including variability

## Year 5

* Pose questions and collect categorical or numerical data by observation or survey
* Construct displays, including column graphs, dot plots and tables, appropriate for data type, with and without the use of digital technologies
* Describe and interpret different data sets in context

## Year 6

* Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables
* Interpret secondary data presented in digital media and elsewhere

## Year 7

* Identify and investigate issues involving numerical data collected from primary and secondary sources
* Construct and compare a range of data displays including stem-and-leaf plots and dot plots
* Calculate mean, median, mode and range for sets of data. Interpret these statistics in the context of data
* Describe and interpret data displays using median, mean and range