

Australian Curriculum V9.0 Data representation

Years 1–2

I can explain how an object, picture or symbol stands for an idea or observation.

Foundation

I can use numbers and words to denote values, events or ideas.

A picture, object or symbol can be used to communicate an idea or observation. For example, which emoji would you choose to tell us how you are feeling today? Which picture shows what tomorrow's weather is expected to be?







Use symbols such as emojis to communicate how we feel. The U shape represents a happy person even though it is only an abstract representation of a smile, not even a whole person.

When drawing a picture to represent familiar objects, identify the features that can help us differentiate one from the other. For example, what features does a cat have that make it different to a dog?

Draw and display pictures to represent our daily activities. Compare representations and identify the commonly used features that make them easy to recognise.

Achievement standard	Students represent data using objects, pictures and symbols and identify examples of data that is owned by them.						
Content descriptions	Represent data as objects, pictures and symbols Digital Technologies AC9TDIFK02						
Related content							
Use shapes or images to represent an object when organising that data.			Cat	Pets in o	Dog	Rabbit	
Mathematics	Collect, sort and compare data represented by objects and images in response to given investigative questions that relate to familiar situations. Mathematics AC9MFST01						

For suggested resources



https://bit.ly/ DataRepFoundation



Objects, ideas and events can be represented as pictures, symbols, numbers and words.

Data such as numbers can be represented as images, words, digits and tally marks.



Symbols such as arrows can be used to represent directions. These might be used to give a series of directions to follow.

Glyphs are graphical symbols or representations used to convey information or data. A simple key helps students interpret the data used to convey information.

An image of a house could be used as a glyph to visually represent data about a family. In this example, the number of windows represents the number of people in the family, red roof means no pets, blue roof means one pet.

First Nations Australians calendars represent seasonal and environmental indicators that signify connected events. For example, the blooming of specific flowers can signify the availability of food resources.

Achievement standard	Students represent	and process data ir	
Content descriptions	Represent data as pictures, symbols,		
Related content			
Data representations can be organised into charts and displays to convey information.		FRU	
Mathematics	Acquire and record data for categoric objects, images, drawings, lists, tally r		

How data is represented and structured symbolically for storage and communication by people and digital systems

ACARA, 2022



cal variables in various ways including using digital tools, marks and symbols | Mathematics AC9M1ST01



Australian Curriculum V9.0 **Data representation**

For suggested resources

https://bit.ly/

DataRepYears3and4

Years 3–4

I recognise different kinds of data and can select appropriate symbols for it and explain my choices.

Years 5–6

I can explain how data like text and images can be represented by numbers.

Students will be familiar with the idea that there are different types of data such as numbers, words, symbols and pictures.

We now explore how the same data can be represented differently depending on the purpose.

Familiar objects and places can be represented using words, photographs and pictures. Some representations provide clearer communication than others.



Actions and commands can also be represented in different ways.





Rock paintings made by First Nations Australians use images to represent knowledge such as resources for food and medicinal uses.

Achievement standard	Students process and represent data for different purposes.				
Content descriptions	Recognise different types of data and explore how the same data can be represented differently depending on the purpose Digital Technologies AC9TDI4K03				
Related content					
Use shapes or images to represent an object when organising that data.		Total number of fruit by type for our class			
Mathematics	Acquire data for categorical and discrete numerical variables to address a question of interest or purpose by observing, collecting and accessing data sets; record the data using appropriate methods including frequency tables and spreadsheets Mathematics AC9M3ST01				

All data can be represented as whole numbers in digital systems.

Whole numbers can be used to represent the alphabet. Make a coded message using numbers to represent position in the alphabet: a = 1, b = 2,c = 3 and so on.

Н	a	V	е	a
8	1	22	5	1

Students are introduced to data in binary (ones and zeros, or on or off states). For example, create an image on a grid using one of two states in each square: coloured or blank. Encode and decode data.



Binary is the simplest possible digit form: 0 or 1. Each digit can be thought of as a switch turned off or on.

Achievement standard	Students process data and show how d			
Content descriptions	Explain how digital systems represent of Explore how data can be represented by Technologies AC9TDI6K04			
Related content				
Explore the constru and role of switches				
Science	Investigate the transfer and transform of circuit components, insulators and			

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Australian Curriculum V9.0

Data representation

Years 7–8

I can show how whole numbers are expressed in binary (zeros and ones), so that different data can be stored and used in digital systems.

Years 9–10

I can demonstrate how plain text content is stored independently of its structure and styling. I can explore ways of compressing data.



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For suggested resources



https://bit.ly/ DataRepYears9and10



styling

font-family: ... font-size: ... colour: ...





Students represent documents as content, structure and presentation ... explain how digital

Represent documents online as content (text), structure (markup) and presentation (styling) and explain why such representations are important | Digital Technologies AC9TDI10K02 Investigate simple data compression techniques | Digital Technologies AC9TDI10K03