



CLASSROOM IDEAS: Years 1–2

Data interpretation and representation: organise data by classifying, grouping and sorting objects and represent as objects, pictures and symbols



Figure 1: An example of 'data boxes' that can be used for classifying, grouping and sorting activities



Figure 2: Seed pods by thrustty CC BY-NC-ND 2.0

Source:

www.flickr.com/photos/thrustty/4874194441/



Figure 3: Loose parts/classroom resources can be sorted and grouped in many ways such as by material.

Representing data as pictures, symbols, numbers and words is an important understanding in the Australian Curriculum: Digital Technologies Years 1–2. Applying the process of classifying, grouping and sorting data is an important skill in Mathematics and Science. To sort and classify familiar objects, students use computational thinking skills to organise data in a logical way.

To understand and practise these skills, Year 1–2 students could:

- discuss how to organise a group of different collected items (Figures 1 and 6). How will you decide to classify the items? How might this change if you do not organise the objects by colour? What other criteria will you use?
- investigate the way work books or resources are classified, sorted and stored in your classroom or in the library. What systems do you use? Why is this helpful or useful?
- collect, sort and classify leaves, seed pods (Figure 2), gumnuts or school items (Figure 3).
- sort and classify plastic bottle tops, lids or rings. Group by size, shape, colour or type (Figure 4). Use a digital system to present the results of the classification process.
- watch videos and read or write stories about sorting, classifying and organising.
- create a list of animals found in your local area (Figure 5). Make a mind map/diagram from this list showing how these animals could be grouped or categorised.
- represent the data as objects, pictures and symbols (Figure 6) AC9DIFK02

Links to the Australian Curriculum

Table 1: Aspects of the Australian Curriculum: Digital Technologies and Australian Curriculum: Mathematics version 9 Years 1–2 which may be addressed depending upon the task.

<p>Digital Technologies</p> <p><i>Achievement standard</i></p>	<p>By the end of Year 2 students show how simple digital solutions meet a need for known users. Students represent and process data in different ways. They follow and describe basic algorithms involving a sequence of steps and branching. With assistance, students access and use digital systems for a purpose. They use the basic features of common digital tools to create, locate and share content, and to collaborate, following agreed behaviours. Students recognise that digital tools may store their personal data online.</p>
<p><i>Strand</i></p> <p><i>Sub-strand</i></p>	<p>Digital Technologies Knowledge and understanding</p> <ul style="list-style-type: none"> Digital systems Data representation
<p><i>Content descriptions</i></p>	<ul style="list-style-type: none"> identify and explore digital systems and their components for a purpose AC9TDI2K01 represent data as pictures, symbols, numbers and words AC9TDI2K02
<p>Year 1 Mathematics</p> <p><i>Achievement standard</i></p>	<p>By the end of Year 1, students connect number names, numerals and quantities, and order numbers to at least 120. They demonstrate how one- and two-digit numbers can be partitioned in different ways and that two-digit numbers can be partitioned into tens and ones. Students partition collections into equal groups and skip count in twos, fives or tens to quantify collections to at least 120. They solve problems involving addition and subtraction of numbers to 20 and use mathematical modelling to solve practical problems involving addition, subtraction, equal sharing and grouping, using calculation strategies. Students use numbers, symbols and objects to create skip counting and repeating patterns, identifying the repeating unit.</p> <p>They compare and order objects and events based on the attributes of length, mass, capacity and duration, communicating reasoning. Students measure the length of shapes and objects using uniform informal units. They make, compare and classify shapes and objects using obvious features. Students give and follow directions to move people and objects within a space.</p> <p>They collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies.</p>
<p><i>Strand</i></p>	<ul style="list-style-type: none"> Statistics
<p><i>Year 1 Content descriptions</i></p>	<ul style="list-style-type: none"> acquire and record data in various ways including using digital tools, objects, images, drawings, lists, tally marks and symbols AC9M1ST01 represent collected categorical data using one-to-one displays and digital tools where appropriate; quantify and compare the data using frequencies and discuss the findings AC9M1ST02
<p>Year 2 Mathematics</p> <p><i>Achievement standard</i></p>	<p>By the end of Year 2, students order and represent numbers to at least 1000, apply knowledge of place value to partition, rearrange and rename two- and three-digit numbers in terms of their parts, and regroup partitioned numbers to assist in calculations. They use mathematical modelling to solve practical additive and multiplicative problems, including money transactions, representing the situation and choosing calculation strategies. Students identify and represent part-whole relationships of halves, quarters and eighths in measurement contexts. They describe and continue patterns that increase and decrease additively by a constant amount and identify missing elements in the pattern. Students recall and demonstrate proficiency with addition and</p>

	<p>subtraction facts within 20 and multiplication facts for twos.</p> <p>They use uniform informal units to measure and compare shapes and objects. Students determine the number of days between events using a calendar and read time on an analog clock to the hour, half hour and quarter hour. They compare and classify shapes, describing features using formal spatial terms. Students locate and identify positions of features in two-dimensional representations and move position by following directions and pathways.</p> <p>They use a range of methods to collect, record, represent and interpret categorical data in response to questions.</p>		
Strand	<ul style="list-style-type: none"> • Statistics 		
Year 2 Content descriptions	<ul style="list-style-type: none"> • acquire categorical data sets through surveys, observation, experiment and using digital tools; sort data into relevant categories and display data using lists and tables AC9M2ST01 • create different graphical representations of data using software where appropriate; compare the different representations, identify and describe common and distinctive features in response to questions AC9M2ST02 		
Technologies Core concepts	<ul style="list-style-type: none"> • Data • Computational thinking 	Digital Technologies Core concepts	<ul style="list-style-type: none"> • Abstraction • Data representation • Data interpretation (Mathematics)
		General capabilities	<ul style="list-style-type: none"> • Digital Literacy • Literacy • Numeracy
Cross-curriculum priorities	<ul style="list-style-type: none"> • Sustainability 	Learning area or subject connections	<ul style="list-style-type: none"> • Science

Table 2: Aspects of the Australian Curriculum: Digital Technologies version 8.4 F–2 which may be addressed depending upon the task.

Digital Technologies	<p>By the end of Year 2, students identify how common digital systems (hardware and software) are used to meet specific purposes. They use digital systems to represent simple patterns in data in different ways.</p>		
Achievement standard	<p>Students design solutions to simple problems using a sequence of steps and decisions. They collect familiar data and display them to convey meaning. They create and organise ideas and information using information systems and share information in safe online environments.</p>		
Strands	<p>Digital Technologies knowledge and understanding</p> <ul style="list-style-type: none"> • Representation of data <p>Digital Technologies processes and production skills</p> <ul style="list-style-type: none"> • Collecting, managing and organising data 		
Content descriptions	<ul style="list-style-type: none"> • Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (ACTDIK002) • Collect, explore and sort data, and use digital systems to present the data creatively (ACTDIP003). 		
Key concepts	<ul style="list-style-type: none"> • data collection • data representation • data interpretation 	Key ideas	<p>Thinking in Technologies</p> <ul style="list-style-type: none"> • computational thinking

Cross-curriculum priorities

General capabilities

- Literacy
- Numeracy
- Critical and Creative Thinking

Useful links

- Australian Curriculum: Digital Technologies
<https://www.australiancurriculum.edu.au/f-10-curriculum/technologies/digital-technologies/>
- Australian Computing Academy (ACA) Unpack the curriculum – F–2 (data collection, representation and interpretation) <https://aca.edu.au/curriculum/>
- Digital Technologies Hub – data detective activity
<https://www.digitaltechnologieshub.edu.au/teachers/lesson-ideas/data-detective>



Figure 4: Plastic lids and rings



Figure 5: Australian water dragon

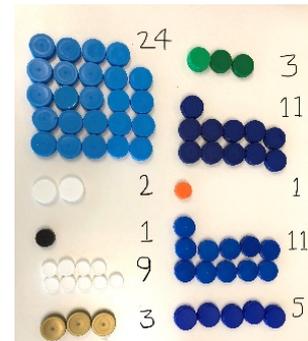


Figure 6: representing data as pictures, numbers and symbols

All images in this resource used with permission or under Creative Commons (CC) licensing.