



CLASSROOM IDEAS: Foundation

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 objects, pictures and symbols is an important understanding in the Australian Curriculum: Digital Technologies Foundation. 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, Foundation 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 based on observable external features. For example, do they have four legs? Are they covered in scales, feathers, skin, fur? ACS9SFU01
- 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 Foundation which may be addressed depending upon the task.

| | | | |
|--|---|---|---|
| Digital Technologies Achievement standard | By the end of Foundation students show familiarity with digital systems and use them for a purpose. They represent data using objects, pictures and symbols and identify examples of data that is owned by them. | | |
| Strand Sub-strand | Digital Technologies Knowledge and understanding <ul style="list-style-type: none"> Data representation | | |
| Content descriptions | <ul style="list-style-type: none"> represent data as objects, pictures and symbols AC9TDIFK02 | | |
| Mathematics Achievement standard | <p>By the end of Foundation Year, students make connections between number names, numerals and position in the sequence of numbers from zero to at least 20. They use subitising and counting strategies to quantify collections. Students compare the size of collections to at least 20. They partition and combine collections up to 10 in different ways, representing these with numbers. Students represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10. They copy and continue repeating patterns.</p> <p>Students identify the attributes of mass, capacity, length and duration, and use direct comparison strategies to compare objects and events. They sequence and connect familiar events to the time of day. Students name, create and sort familiar shapes and give their reasoning. They describe the position and the location of themselves and objects in relation to other objects and people within a familiar space.</p> <p>Students collect, sort and compare data in response to questions in familiar contexts.</p> | | |
| Strand | <ul style="list-style-type: none"> Statistics | | |
| Content descriptions | <ul style="list-style-type: none"> collect, sort and compare data represented by objects and images in response to given investigative questions that relate to familiar situations AC9MFST01 | | |
| 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.

| | | | |
|---|--|------------------------------------|--|
| <p>Digital Technologies</p> <p>Achievement standard</p> | <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> <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> | | |
| <p>Strands</p> | <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 | | |
| <p>Content descriptions</p> | <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). | | |
| <p>Key concepts</p> | <ul style="list-style-type: none"> data collection data representation data interpretation | <p>Key ideas</p> | <p>Thinking in Technologies</p> <ul style="list-style-type: none"> computational thinking |
| <p>Cross-curriculum priorities</p> | | <p>General capabilities</p> | <ul style="list-style-type: none"> Literacy Numeracy Critical and Creative Thinking |

Useful links

- Australian Curriculum: Digital Technologies
https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/design-and-technologies_digital-technologies/
- Australian Computing Academy (ACA) Unpack the curriculum – F–2 (data collection, representation and interpretation) <https://groklearning.com/a/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

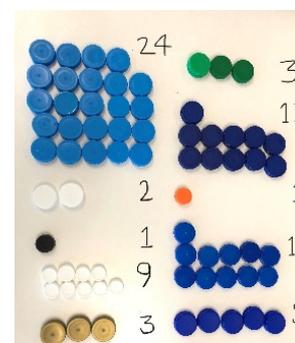


Figure 6: representing data as objects and symbols

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