DTiF
Digital Technologies in focus
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acara AUSTRALIAN CURRICULUM, ASSESSMENT AND REPORTING AUTHORITY

CLASSROOM IDEAS: YEARS 3–4

Collecting data about litter in the community

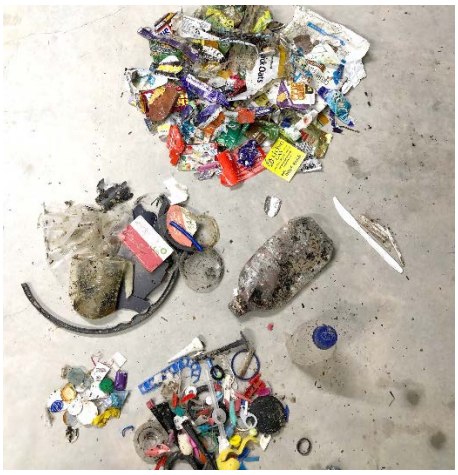

Figure 1: Litter collected from a local beach

The waste we find in our local environment can provide a good source of data. Litter can be found in the bush, on the beach and in our waterways as well as in public places and schools. The interpretation of data can help us answer a range of inquiry questions such as:

- What are people throwing away?
- How much of what we see littered can be recycled?
- What kinds of items do we find and where?
- What can we do to reduce littering or promote recycling?

In Digital Technologies, students collect and manipulate different data when creating information and digital solutions. Year 3–4 students could use waste from their local environment to:

- explore how the same data can be represented in different ways
  - Since data can be collected and represented as text, images or audio, how many ways can your data be represented?
- collect and present data using simple software
  - How could you present these data to an audience?
  - What are the best ways to show other people what you have discovered through your data collection; for example:
    - How much has been collected?
    - What items were most commonly collected?
  - What software could be used to represent these data? How could you highlight different findings such as by number of items, type or weight?

Figure 2: Arranging litter for interpretation

- define a problem and describe a sequence of steps and decisions (algorithms) needed to solve it
  - What steps could be taken to reduce the waste collected?
  - What might a waste reduction procedure or set of guidelines look like? How could you communicate this?
  - How could a waste reduction algorithm be presented as an infographic, poster, flowchart or advertising message?

Links to the Australian Curriculum

Table 1: Aspects of the Australian Curriculum: Digital Technologies 3–4 which may be addressed depending upon the task.

Digital Technologies ***Achievement standard***	By the end of Year 4, students describe how a range of digital systems (hardware and software) and their peripheral devices can be used for different purposes. They explain how the same data sets can be represented in different ways. Students define simple problems, design and implement digital solutions using algorithms that involve decision-making and user input. They explain how the solutions meet their purposes. They collect and manipulate different data when creating information and digital solutions. They safely use and manage information systems for identified needs using agreed protocols and describe how information systems are used.		
Strands	Digital Technologies knowledge and understanding • Representation of data Digital Technologies processes and production skills • Collecting, managing and analysing data • Creating designed solutions by – Investigating and defining		
Content descriptions	• Recognise different types of data and explore how the same data can be represented in different ways (ACTDIK008) • Collect, access and present different types of data using simple software to create information and solve problems (ACTDIP009) • Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010)		
Key concepts	• data collection • data representation • data interpretation	***Key ideas***	Thinking in Technologies • computational thinking
Cross-curriculum priorities	• Sustainability	***General capabilities***	• Information and Communication Technology (ICT) Capability • Literacy • Numeracy

Data can help us answer inquiry questions:

- How is wildlife affected by litter in the environment?
- Why do our local councils recycle some items and not others?
- Which areas in our local environment are most littered? Why? What can be done to change this?

In what ways could a waste collection activity link to other learning areas?

Figure 3: Discarded plastics arranged to create an artwork and waste and recycling bins.

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