DTiF

Digital Technologies in focus

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CLASSROOM IDEAS: FOUNDATION

Exploring patterns and data with bread tags and plastic lids

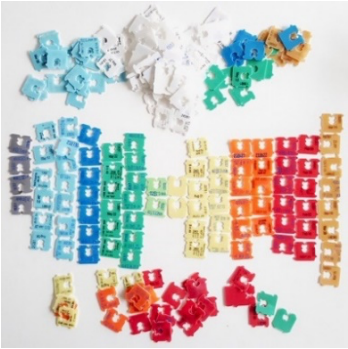

Figure 1: Bread tags sorted by colour and type Image by @the_breadtag_project

Figure 2: An artwork made by arranging discarded plastic lids Image by @life_islikeacamera

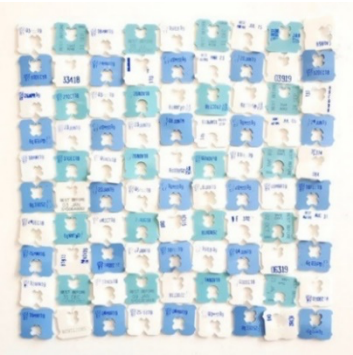

Figure 3: Patterns made with bread tags by @the_breadtag_project

Inspiration: Bread tags (also called bread clips or bread ties) and plastic drink bottle lids are very common in our homes and schools today. Unfortunately, these items are not easy to recycle because of their size and the kind of plastic they are made from. They are a commonly discarded plastic and can be found in all sorts of places in the environment such as parks.

Using them (as shown in Figures 1-4) as the focus of or manipulative in an activity provides an opportunity to talk to students about sustainability. This might include ways to re-use and re-purpose bread tags and lids, such as in Visual Arts or Technologies projects or by collecting and sending them to people or organisations who can use them productively. There are also possibilities for students to produce persuasive texts about issues related to recycling and re-design.

In Digital Technologies, manipulatives such as these bread tags and lids can be used to learn more about data (information we collect and use). For example, in Foundation, students could use bread tags or plastic lids to:

- explore patterns in data
  - What patterns can you make with the different colours, shapes or sizes?
  - How could you arrange them to show other people how many there are? Which ones are the most popular shapes or colours? And so on.
  - Take photos of the different types and display them using a projector, on an interactive whiteboard, in a digital presentation on a computer in a digital document or other way.
- collect, explore and sort data
  - How many bread tags (or lids) has your class collected? Are they all the same?
  - Are they different? What makes them different?
  - What ways could you sort them to make them easy to count?

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 • Digital systems • Data representation		
Content descriptions	• recognise and explore digital systems (hardware and software) for a purpose AC9TDIFK01 • represent data as objects, pictures and symbols AC9TDIFK02		
Mathematics ***Achievement standard***	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. 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. Students collect, sort and compare data in response to questions in familiar contexts.		
Strand	• Statistics		
Content descriptions	• 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	• Data • Computational thinking	***Digital Technologies Core concepts***	• Abstraction • Data representation
		General capabilities	• Digital Literacy • Literacy • Numeracy
Cross-curriculum priorities	• Sustainability	***Learning area or subject connections***	• The Arts – Visual Arts

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

Digital Technologies ***Achievement standard***	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. 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.		
Strands	Digital Technologies knowledge and understanding • Representation of data Digital Technologies processes and production skills • Collecting, managing and analysing data		
Content descriptions	• 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	• 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

Suggested inquiry questions for students in Foundation:

1. What are bread tags made of? Why are they different colours?
2. Why are these items difficult to recycle?
3. Who invented the bread tag? Why?
4. What materials could we use to design a better bread tag?

In what ways could a bread tag or bottle lid activity link to other learning areas?

Is there an opportunity to set your students a design challenge with bread tags or plastic lids? If so, consider design solutions that will allow the materials to be recycled later. For example, threading, stacking or joining in non-permanent ways. If lids or bread tags are glued together they may still end up as landfill at the end of a project. The artwork in Figure 4 uses layered bread tags to create an image for photographing.

For ideas on repurposing bread tags see 'the bread tag project' @the_breadtag_project. For ideas on repurposing plastic bottle lids see https://envision.org.au/envision-hands/.

Figure 4: Bread tag artwork by @the_breadtag_project #breadtagalphabet

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