**Resource for:**

***Design and Technologies Processes and Production Skills***

*ACTDEP014 – Critique needs or opportunities for designing and exploring and test a variety of materials, components, tools and equipment and the techniques needed to produce designed solutions*

* *Exploring the properties of materials to determine suitability, for example the absorbency of different fabrics or the strength of different resistant materials*
* The Big Question: WHAT DOES LIFECYCLE OF MATERIALS MEAN?
* Prior learning: understand properties of recyclable materials
* Students undertake several tests of different materials to determine suitability for structures against erosion, weather
  + **Using paper/cardboard origami** (Jonathan Baxter – Hands on Maths) to create shapes (Mathematics/geometrics). Simulated weather tests involve using shower head hose (rain), crushed ice (heavy snow), hair dryer/fan (wind), heat fan (sun). Which shape holds up greater under these extremes (Science)
    - Look at water run-off (rain water harvesting designs) (Sustainability)
    - Look at structural integrity
    - Look at different building structures around the world and how they differ according to their environment – question, are they reusable/ recyclable?
  + **Look at clip :** <https://youtu.be/1bHdzTUNw-4> (English)
  + **Review book** “The Lorax” looking at character Thneed (English)
  + **Look at clip** : <https://youtu.be/XAYG_jlybGE> (English)
  + Using different materials to determine suitability. Simulated testing involve handling different materials (wool, cotton, synthetics, wood, bamboo, glass, plastic, metal, silk, cardboard, paper, straw, bubble wrap. Tests involve using shower head hose (rain), crushed ice (heavy snow), hair dryer/fan (wind), heat fan (sun) exposed on the materials for set amount of time
    - Look at strength, flexibility, porousness
    - Look at reusing the material/ recycling abilities
    - Look at durability (suitable for different environments)
    - Look at comfort
    - Look at origin of material

**Resource for:**

***Digital Technologies Processes and Production Skills***

##### *Digital Technologies Knowledge and Understanding*

*ACTDIK008 – Recognise different types of data and explore how same data can be represented in different ways*

Recognise different types of [data](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Data) and explore how the same [data](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Data) can be represented in different ways [(ACTDIK008)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIK008)

using a table to reorganise information that includes sentences, and/or words, and/or numbers and/or images

*ACTDIP009 – complementary*

##### *Digital Technologies Processes and Production Skills*

Collect, access and present different types of [data](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=T&t=Data) using simple software to create information and solve problems [(ACTDIP009)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP009)

* *Use a table to reorganise information that includes sentences, and/or words, and/or numbers and/or images*

###### Maths: Data representation and interpretation

Select and trial methods for [data](http://v7-5.australiancurriculum.edu.au/glossary/popup?a=M&t=Data) collection, including survey questions and recording sheets[(ACMSP095)](http://v7-5.australiancurriculum.edu.au/curriculum/contentdescription/ACMSP095" \o "View additional details of ACMSP095)

* The Big Question: WHAT DOES LIFECYCLE OF MATERIALS MEAN?
* *The information from ACTDEP014 (above) will be used for this part for this resource.*

Look at clip : <https://youtu.be/P9UjmOHC300>

<http://www.slideshare.net/j_villis/ideas-for-teaching-chance-data-and-interpretation-of-data>

Worksheet: 

How many items can you find that we can re-use and/or recycle?

What is the difference?

Collate information found in the classroom

Collate information found in the school

Collate information found in other classrooms

Collate information found in the canteen

Collate information found in the library & ICT building

Collate information found in the office building

Collate information found in the outside grounds of the school

Make comparisons

How can we improve as a school?

Can we do more? – use shredded paper as compost/ground cover?

Let’s look further afield – what are people doing in other countries? Research – Mali (don’t use plastic bags)

**References:**

<http://www.australiancurriculumlessons.com.au/2014/08/02/ideas-teaching-chance-data-interpretation-data-unit-work-years-345/>

<http://www.coolaustralia.org/activity/life-cycle-analysis/>

Primary connections

<https://youtu.be/P9UjmOHC300>

<https://youtu.be/XAYG_jlybGE>

<https://youtu.be/1bHdzTUNw-4>

Jonathan Baxter – Hands on Maths)

ACARA