## SCIENCE/TECHNOLOGY (Design and Digital)  TERM 1, _____

| UNIT TITLE: | What's it made of? Building Humpty's Wall (Natural and Processed Materials) |
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| FOUNDATION YEAR ACHIEVEMENT STANDARD | **SCIENCE**<br><br>By the end of the Foundation year, students describe the properties and behaviour of familiar objects. They suggest how the environment affects them and other living things.<br><br>Students share observations of familiar objects and events.<br><br>**TECHNOLOGY (Design)**<br><br>By the end of Year 2, students describe the purpose of familiar products, services and environments and how they meet the needs of users and affect others and environments. They identify the features and uses of some technologies for each of the prescribed technologies contexts.<br><br>With guidance students create designed solutions for each of the prescribed technologies contexts. They describe given needs or opportunities. Students create and evaluate their ideas and designed solutions based on personal preferences. They communicate design ideas for their designed products, services and environments using modelling and simple drawings. Following sequenced steps students demonstrate safe use of tools and equipment when producing designed solutions.<br><br>**TECHNOLOGY (Digital)**<br><br>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.<br><br>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. |

| Developing Inquiring and Reflective Learners | General Capabilities | Cross Curricular Priorities Covered in this unit ☑ |
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| <ul><li>**Community Contributor**</li><li>**Leader and Collaborator**</li><li>**Effective Communicator**</li><li>**Active Investigator**</li><li>**Designer and Creator**</li><li>**Quality Producer**</li></ul> | <ul><li>**Literacy**</li><li>**Critical and Creative Thinking**</li><li>**Numeracy**</li><li>**Ethical Behaviour**</li><li>**Information and Communication Technology**</li><li>**Personal and Social Competence**</li></ul> | ☐ Catholic Ethos<br>☒ Sustainability Education<br>☒ Aboriginal and Torres Strait Islander Histories and Culture<br>☐ Social Emotional Learning |

| | • **Intercultural Understanding** | ☐ **Asia and Australia'** |
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| UNIT OUTLINE | CONTENT DESCRIPTIONS | ASSESSMENT |
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| Students explore, through hands on activities, what things are made of in the school environment and the properties of the materials used to make them.<br><br>**INTEGRATION WITH OTHER LA'S**<br><br>English<br><br>Maths<br><br>Information and communication Technology | **Science Understanding**<br>*Chemical sciences*<br><br>Objects are made of materials that have observable properties (ACSSU003)<br><br>**Science as Human Endeavour**<br>*Nature and development of science*<br><br>Science involves observing, asking questions about, and describing changes in, objects and events (ACSHE013)<br><br>**Science Inquiry Skills**<br>*Questioning and predicting*<br><br>Pose and respond to questions about familiar objects and events (ACSIS014)<br><br>*Planning and conducting*<br><br>Participate in guided investigations and make observations using the senses (ACSIS011)<br><br>*Processing and analysing data and information*<br><br>Engage in discussions about observations and represent ideas (ACSIS233)<br><br>*Communicating*<br><br>Share observations and ideas (ACSIS012)<br><br>**Technology – Design**<br><br>Explore the characteristics and properties of materials and components that are used to produce designed solutions (ACTDEK004)<br><br>**Technology – Digital**<br><br>Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001)<br><br>*Digital Technologies Processes and Production Skills*<br><br>• Explore needs or opportunities for designing, and the technologies needed to realise designed solutions (ACTDEP005) | SCIENCE<br><br>Make an Object – See Assessment Task<br><br>Create an object using materials that suit its purpose.<br><br>Identify, observe and describe the properties of a variety of materials.<br><br>Describe why particular materials were chosen to make their object and how they compare to other materials not chosen.<br><br>TECHNOLOGY<br><br>Students make a structure out of recycled materials that can support an object (Humpty).<br>Checklist Yes/ No assessable elements<br>Students reflect using the app 'DoodleCast' to answer key questions about the production of their wall. |

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| | <ul><li>Generate, develop and record design ideas through describing, drawing and modelling (ACTDEP006)</li><li>Use materials, components, tools, equipment and techniques to safely make designed solutions (ACTDEP007)</li><li>Use personal preferences to evaluate the success of design ideas, processes and solutions including their care for environment(ACTDEP008)</li><li>Sequence steps for making designed solutions and working collaboratively(ACTDEP009)</li></ul> | |

| WEEK | 5E's | Content Descriptions | Learning and Teaching Experiences | Resources | Assessment |
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| 1 | Engage | | Utilising *Primary Connections: What's it made of? (Chemical Sciences)*<br><br>**Lesson 1 – Minds on Maps**<br>**Session One – A School Walk –** Predict what things they might see in the school environment.<br><br>Walk around the school area and identify, describe and discuss the things in the school environment.<br><br>**TECHNOLOGY - Digital**<br>Explicitly teach students parts and functions of an iPad (home button, lock screen, swipe to unlock screen, how to search for apps, etc). | **Class science journal;**<br>**Word wall;**<br>**Map;**<br>**Digital camera ipads** | **Diagnostic – Find out what the students already know and understand about objects, everyday materials and their properties.** |
| 2 | Engage | | **Lesson 1 – Minds on Maps cont'd**<br>**Session Two – Let's Make a Map –** Students contribute to a class picture map of the school environment and use sequencing to draw individual picture maps of the school environment.<br><br>**TECHNOLOGY - Digital**<br>Students learn to take an image, edit using the camera and export to camera roll. | **Class science journal;**<br>**1 piece of large cardboard;**<br>**Word wall;**<br>**Digital camera/iPad.** | **Diagnostic – Find out what the students already know and understand about objects, everyday materials and their properties.** |
| 3 | Explore | | **Lesson 2 – Object Observers**<br>Students describe an object and the material that it is made of.<br>They use the class picture map to locate and observe an object in the school environment.<br><br>Students use descriptive language to share observations about objects and what they are made of.<br><br>**TECHNOLOGY - Digital**<br>Students are explicitly taught the features of 'Doodle Cast' app including (taking a photo, add photo from camera roll, adding title, recording audio, pausing or adding more audio and save). | **Science journal;**<br>**Word wall;**<br>**class map;**<br>**object made of one material;**<br>**copy of *'Doodle Cast'***<br>***Recycled household material*** | **Formative – Monitor students developing understanding and give feedback that extends their learning.** |

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| | | | <br>Children collect recyclable materials to make structures. | | |
| 4 | **Explore** | | **Lesson 3 – The Name Game**<br>Students predict what material an unseen object might be made of.<br><br>Students use senses to explore and describe an unseen object.<br>Students compare object that are the same but made of different material.<br><br>Students use observations to sort objects according to the material that they are made of.<br><br>Students match a group of objects with a label describing what they are made of.<br><br>**TECHNOLOGY** - Digital<br>Students explore the features of 'Doodle cast' app including (taking photo or adding photos from camera roll, adding a title, recording audio, pausing or adding more audio and saving).<br><br>OPTIONAL HOMEWORK GRID ACTIVITY<br>Children collect recyclable materials to make structures. | **Class Journal;**<br>**Word wall;**<br>**Class picture map.**<br>**Ipad with doodlecast app.** | Formative - Continued |
| 5/6 | **Explain** | | **Lesson 4 – Making Sense of Materials**<br>**Session 1 – Making Books**<br>Review the class science journal, word wall and picture map.<br><br>Students represent observations and descriptions of materials.<br><br>They discuss why people select materials for different purposes.<br><br>**Session 2 – Silly Stories**<br>Students suggest why some materials are more suitable than others to make particular objects.<br><br>Students draw a picture of an object made from an unsuitable and suitable material.<br><br>**TECHNOLOGY** – Design | **Class journal;**<br>**Word wall;**<br>**set of material labels;**<br>**Enlarged copies of 'What is it made of?'**<br>**Recycled materials**<br>**Adhesives – masking tape, glue** | Formative – observations that students are developing an understanding of objects and materials, comparing their properties and their selection for particular purposes. |

| | | | Students design their structure (wall) considering the constraints and materials provided.<br>- Make a structure out of recycled materials<br>- Your structure will need to support an object (Humpty)<br>- Your structure will need to stand at least ½ metre high<br><br>OPTIONAL HOMEWORK GRID ACTIVITY<br>Children collect recyclable materials to make structures. | | |
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| 7 | Elaborate | | **Lesson 5 – Waterproof Wonders**<br>**Session 1 – Testing Things**<br>Students discuss types of materials for a particular purpose.<br><br>They test materials for water resistance. | **Class science journal;**<br>**Word wall;**<br>**Class picture map.** | **Summative Assessment – Observe for evidence of following directions to test materials for water resistance. Evidence of students making and describing observations. Students making and recording observations.** |
| 8 | Elaborate | | **Lesson 5 – Waterproof Wonders Cont'd**<br>**Session 2 - Using Things**<br>Students provide reasons for selecting materials for a particular purpose.<br><br>They plan and make an object for the school environment.<br><br>TECHNOLOGY – Design (at least 2 hours)<br>Students create their structure (wall) considering the constraints and materials provided.<br>- Make a structure out of recycled materials<br>- Your structure will need to support an object (Humpty)<br>- Your structure will need to stand at least ½ metre high | **Class picture map;**<br>**A range of materials for making an object;**<br>**A range of joining materials.** | **Summative - Continued** |
| 9 | Evaluate | | **Lesson 6 – Location, Location!**<br>Students share and compare their ideas about the properties of materials.<br><br>They share what they know about objects in the school environment and the materials used to make them.  They reflect on their learning | **Ipad with doodlecast app.** | **Summative – Students identify examples of everyday materials Students observe and describe properties of materials** |

| | | | during the unit.<br><br>**TECHNOLOGY – Digital**<br><br>Students use the ipad camera (or similar) to take and edit the photos of their structure at the design phase, constructed phase and after it has been tested.  Students then import their photos to 'Doodle Cast' app to add a title, record audio answering key questions and save. | | **Students describe why a material is used for a particular purpose**<br>**Students compare the properties of materials.** |
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| **10** | **Evaluate** | | **Students reflect on their learning during this unit.**<br>**Ensure all assessment is completed.** | **Ipad with doodlecast app.** | |

*Humpty Dumpty Sat on the Wall*
Assessment Task Sheet.

# Design and Technologies and Digital
# Technologies Assessment Task Sheet.

## Task Description:

**Recycle materials to make a structure (wall) that is able to support the weight of an object (Humpty Dumpty). The structure will need to stand at least half a meter high 50cm.**



## Take 3 photos,

1. **Your design**
2. **Your finished product**
3. **Your structure once Humpty has tried it out.**

**After you test the structure (wall)**
**Take three photos and edit it them through camera roll** *(crop, lighten, filter).*
**Use "doodlecast" ipad app to**

  o *Explain what did you use*
  o *What you liked?*

o *What would you change?*

| ☐ Active Investigator<br>☐ Effective Communicator | ☐ Designer and Creator<br>☐ Quality Producer | ☐ Community Contributor<br>☐ Leader and Collaborator |
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### *Design and Technologies*

By the end of Year 2, students describe the purpose of familiar products, services and environments and how they meet the needs of users and affect others and environments. They identify the features and uses of technologies for each of the prescribed technologies contexts.

With guidance, students create designed solutions for each of the prescribed technologies contexts. They describe given needs or opportunities. Students create and evaluate their ideas and designed solutions based on personal preferences. They communicate design ideas for their designed products, services and environments using modelling and simple drawings. Following sequenced steps, students demonstrate safe use of tools and equipment when producing designed solutions.

### *Design and Technologies*

Explore the characteristics and properties of materials and components that are used to produce designed solutions (ACTDEK004)

### *Digital Technologies*

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.

| Learning Intention F - 2 Achievement Standard | Success Criteria: (come from the content description or task that you're doing) | Written feedback for student | At, above or below standard (this column ideally would even just be on your records, not for the students to see as data says written feedback changes student results and that graded results don't-and can even lower performance in some |
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| | | | |

| | | | instances ) |
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| *Design and Technologies*<br><br>By the end of Year 2, students describe the purpose of familiar products, services and environments and how they meet the needs of users and affect others and environments.<br>They identify the features and uses of technologies for each of the prescribed technologies contexts.<br><br>With guidance, students create designed solutions for each of the prescribed technologies contexts. They describe given needs or opportunities.<br>Students create and evaluate their ideas and designed solutions based on personal preferences. They communicate design ideas for their designed products, services and environments using modelling and simple drawings. Following sequenced steps, students demonstrate safe use of tools and equipment when producing designed solutions. | *Design and Technologies*<br><br>Explore the characteristics and properties of materials and components that are used to produce designed solutions (ACTDEK004)<br><br>*Digital Technologies*<br><br>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.<br><br>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. | | |
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# SCIENCE/TECHNOLOGIES (digital and design)

| Criteria | A | B | C | D | E |
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| The student work demonstrates evidence of: | | | | | |
| **Science Understanding**<br><br>Objects are made of materials that have observable properties<br><br>Processing and analyzing data and information Engage in discussions about observations and use methods such as drawing (creating) to represent ideas | Independently creates an object using materials that suit its purpose. Produces an exceptional object with effective materials (i.e. waterproof). | Independently creates an object using materials that suit its purpose. (i.e. waterproof). | Creates an object using materials that suit its purpose. (i.e. waterproof). May have one material with a property that does not suit. | With some assistance, creates an object using materials that suit its purpose. (i.e. waterproof). May have one material with a property that does not suit. | Required support to create an object using materials that suit its purpose. (i.e. waterproof). Has more than one material with a property that does not suit. |
| **Human Endeavour**<br><br>Sharing observations with others and communicating their experiences | Can accurately describe in detail why particular materials were chosen to make their object and how they compare to other materials not chosen. | Can describe with some detail why particular materials were chosen to make their object and how they compare to other materials not chosen. | Can describe why particular materials were chosen to make their object and how they compare to other materials not chosen. | With some assistance can describe why particular materials were chosen to make their object and how they compare to other materials not chosen. | Required support in order to describe why particular materials were chosen to make their object and how they compare to other materials not chosen. |

| Inquiry | | | | | |
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| Considering questions relating to the home and school and objects used in everyday life | Can accurately and independently identify, observe and describe the properties of a variety of materials. | Can independently identify, observe and describe the properties of many materials. | Can identify, observe and describe the properties of a variety of materials. May have an error. | With some assistance can identify, observe and describe the properties of a variety of materials. May have an error. | Required support to identify, observe and describe the properties of some materials. |