

Design and Technologies - Below satisfactory - Years 3 and 4

Portfolio summary

This portfolio of student work shows that the student can explain how products, services and environments are designed to best meet needs of communities and their environments (WS1, WS2, WS3). The student describes contributions of people in design and technologies occupations (WS3) and describes how the features of technologies can be used to produce designed solutions for each of the prescribed technologies contexts (WS1, WS2, WS3).

The student creates designed solutions for each of the prescribed technologies contexts (WS1, WS2, WS3). The student explains needs or opportunities and evaluates ideas and designed solutions against identified criteria for success, including environmental sustainability considerations (WS1, WS2, WS3). The student develops and expands design ideas and communicates these using models and drawings including annotations and symbols (WS1, WS2, WS3). The student plans and sequences major steps in design and production (WS1, WS3). The student identifies appropriate technologies and techniques and demonstrates safe work practices when producing designed solutions (WS1, WS2, WS3, WS4).

Design project: All systems go

Sample summary

Students investigated two closed force systems (pneumatics and hydraulics) to understand that the technology of pneumatics relates to air pressure and the technology of hydraulics relates to water pressure. They were given a design brief to design a machine (incorporating pneumatics and/or hydraulics) to extract a rare dinosaur egg from a remote location and move it to a safe storage container. Students developed design ideas and communicated these using annotated drawings. They selected suitable materials to make a scale model of their design and gave an oral and visual presentation to the class describing how their machine worked (designed solution), which system they used and the reasons why decisions were made, problems faced and how they were resolved.

The focus of this task was to design and produce a service for the technologies context engineering principles and systems.

Achievement standard

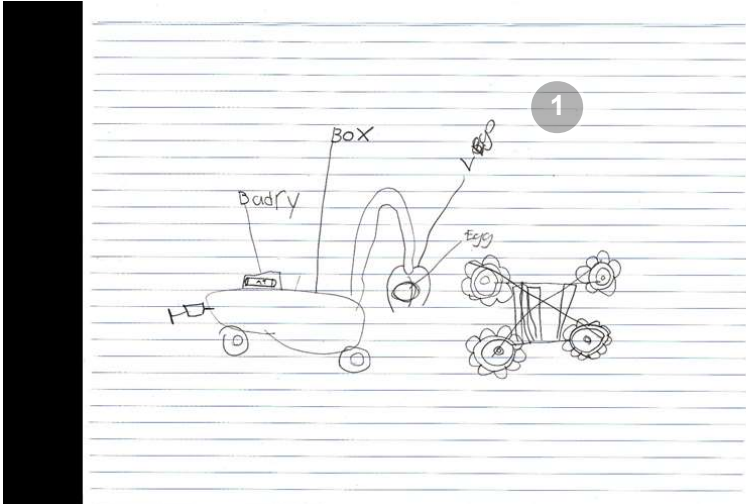
Subject

Learning Area

By the end of Year 4, students explain how products, services and environments are designed to best meet needs of communities and their environments. They describe contributions of people in design and technologies occupations. Students describe how the features of technologies can be used to produce designed solutions for each of the prescribed technologies contexts.

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Portfolio



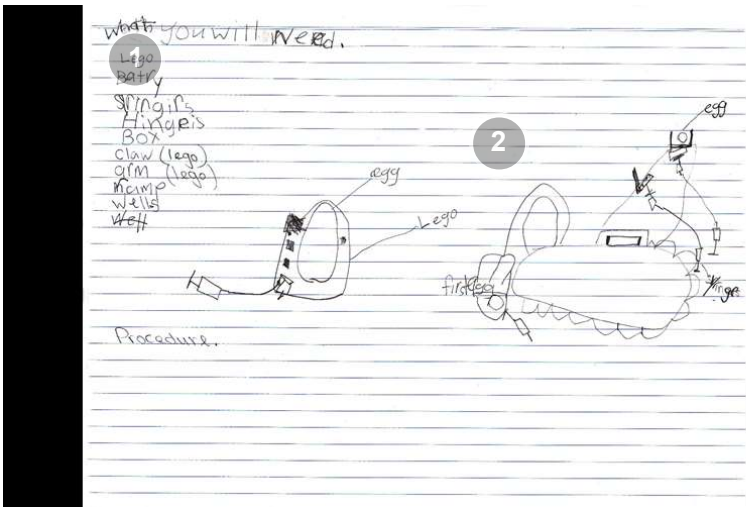
Annotations

- 1 Annotation 1**
Uses a drawing with annotations to communicate a designed solution



Annotations

- 1 Annotation 1**
Evaluates the designed solution



Annotations

- 1 Annotation 1**
Identifies the materials and equipment needed to make the model of the solution
- 2 Annotation 2**
Communicates design ideas using labelled drawings



Annotations

- 1 **Annotation 1**
Records final designed solution

Design project: Food

Sample summary

Students investigated how to collect suitable materials for composting at their school to improve recycling, reduce waste and improve the productivity of the school kitchen garden. Students designed and produced drawings of a composting system for food waste management for the school and implemented a system for collecting material for the compost from each of the classrooms after lunch. They weighed and recorded the collected material, then represented and interpreted the data as evidence of the success of the service. Students identified at least one ingredient from the school kitchen garden that could be used to make a drink. They demonstrated how to make the drink using appropriate equipment.

The focus of this task was to design and produce a service and a product for the technologies context food and fibre production/food specialisations.

Achievement standard

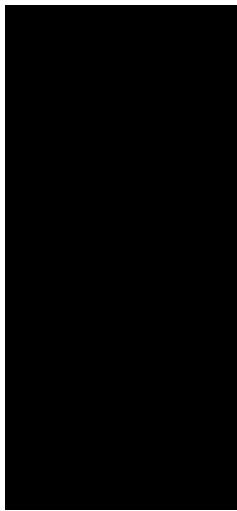
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Design portfolio excerpts



Date: 15/1/14

1. What do you think technologies mean?
things computers machinery

2. How much do you know about technologies?
 1 2 3 4 5 6 7 8 9 10 (10 pts)

3. What sort of equipment do you think you might need when working with technologies?
laptops wires chips

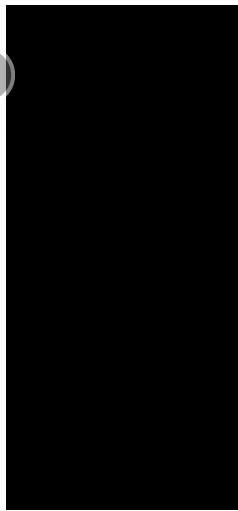
4. What sort of products could you design in the area of technologies?
lamps wires

5. What sort of people would design new technologies?
engineers computer scientists programmers

6. Do you think technology and the environment work together?
no

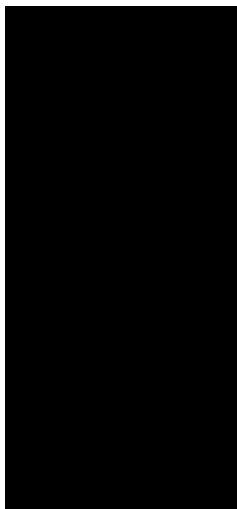
• On the back of the page draw some things that you think of when you hear the word technologies.

1



Annotations

- 1 **Annotation 1**
 Uses prior knowledge to complete pre-test on their understanding of technologies



Date: 11/1/14

1. What do you think technology means?
something that solve problems and makes life

2. How much do you know about technologies?
 1 2 3 4 5 6 7 8 9 10 (10 pts)

3. What sort of equipment do you think you might need when working with technologies?
computer

4. What sort of products could you design in the area of technologies?
anything anything

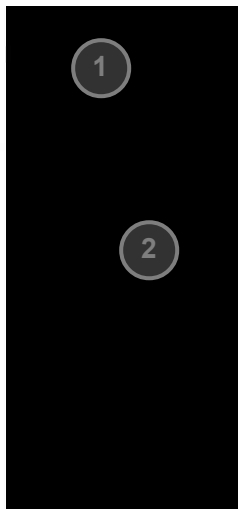
5. What sort of people would design new technologies?
anybody

6. Do you think technology and the environment work together?
yes

• On the back of the page draw some things that you think of when you hear the word technologies.

1

2



Annotations

- 1 **Annotation 1**
 Applies new knowledge to complete post-test on their understanding of technologies
- 2 **Annotation 2**
 Identifies some equipment when working with technologies



1. pull sheet out of tin to let compost in
 2. put compost in plastic container attach to compost
 3. roll and turn lever to mix compost

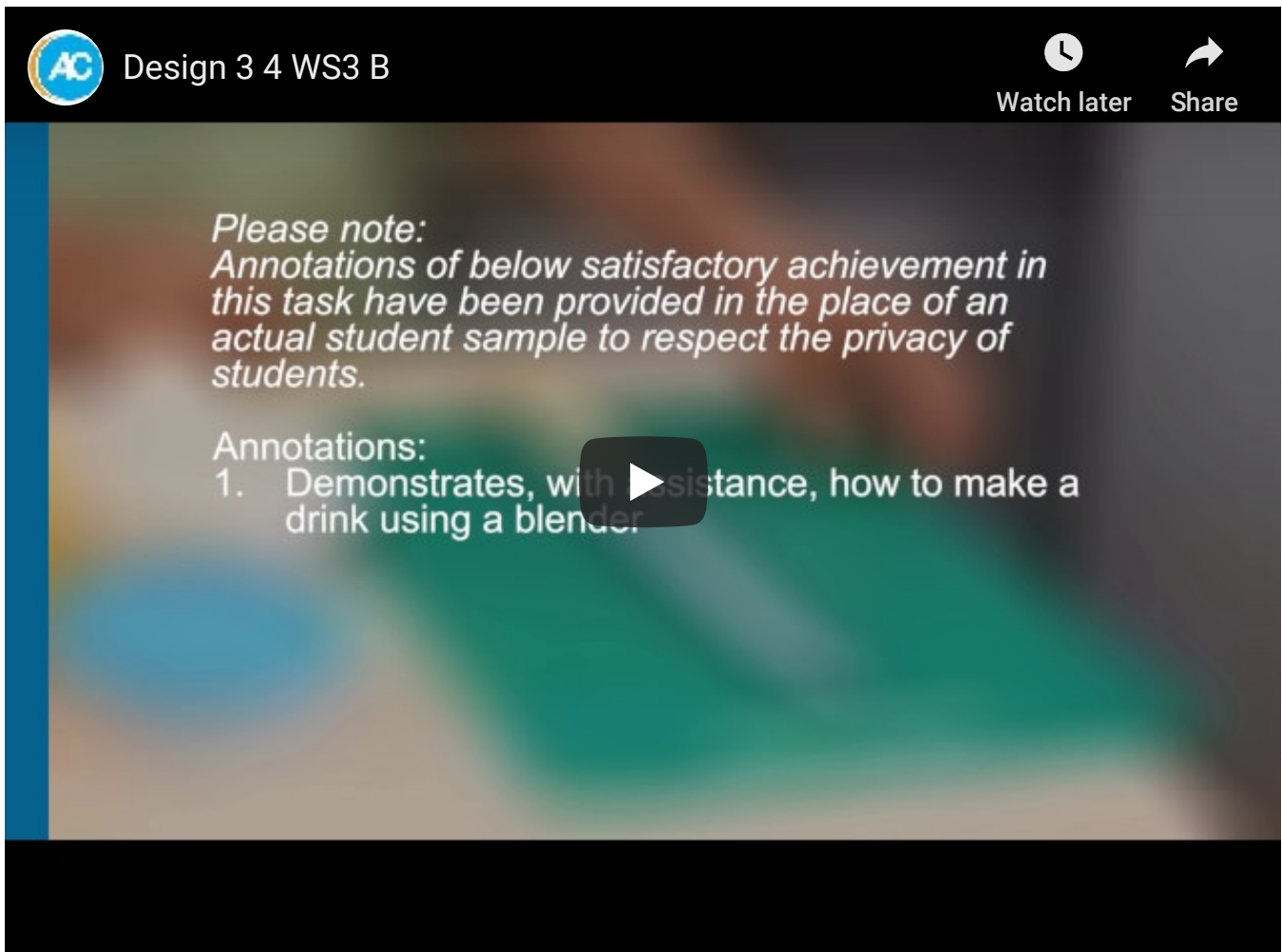
get it out of the plastic container
 attach to compost
 container in the plastic pipe

1

Annotations

- 1 **Annotation 1**
 Communicates design ideas by drawing and writing a description

Description



Presentation: Working safely

Sample summary

Students have collected evidence of safe and skilful use of technologies in a range of design tasks and recorded this in a presentation template provided by the teacher.

Achievement standard

Subject

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steps in design and production. They identify appropriate technologies and techniques and demonstrate safe work practices when producing designed solutions.

Slides

Design and Technologies

PRODUCING DESIGNED SOLUTIONS SAFELY

Preparing food

Before starting to prepare food I remember to:

Wash hands in soap. **1**

When I use a knife I remember to:

Put a board and not cut me. **2**

Annotations

- 1 Annotation 1**
States one stage of washing hands prior to preparing food
- 2 Annotation 2**
Identifies the need for a chopping board and to be careful when using a knife

Using materials and tools

When working with tools and equipment I remember to:

Use tools careful like scissors and knives. **1**

Get a teacher



Annotations

- 1 Annotation 1**
States that care should be taken when using scissors and utility knives
- 2 Annotation 2**
Provides a photo of scissors

Protective gear

I remember to wear:

hat and shoes when I dig in the garden and suncream

1



Annotations

1

Annotation 1

Lists some protective gear needed for a situation and provides photos

Design project: Water

Sample summary

Students investigated water management systems in the school and made suggestions for design improvement, or offered alternative designs to solve perceived problems. They were required to submit a labelled diagram/drawing of their design idea including information about what problem the design was intended to solve, how the design would work and suggested materials for building the design. Students selected suitable materials to make a scale model of their design. They tested their model and evaluated its effectiveness. Students documented the design process in a digital format including photographs, videos, scanned documents, and three-dimensional rendered models presented.

The focus of this task was to design and produce improvements to an environment for the technologies context materials and technologies specialisations.

Achievement standard

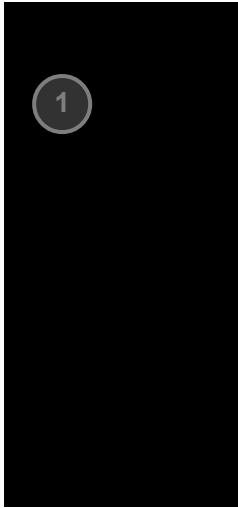
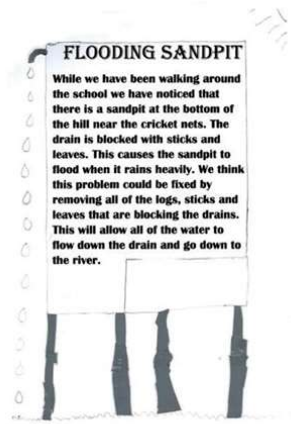
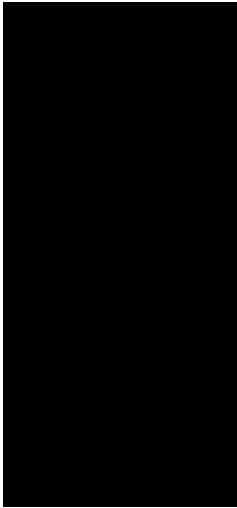
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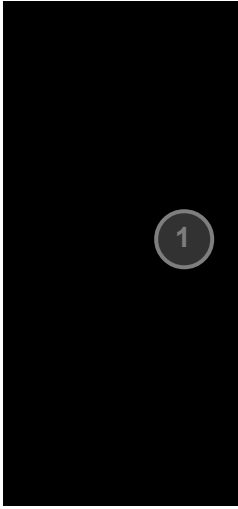
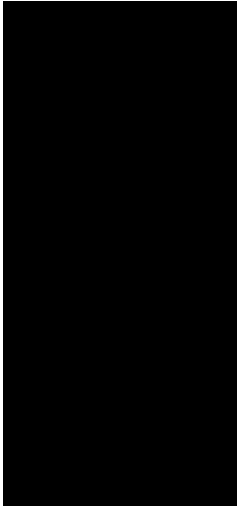
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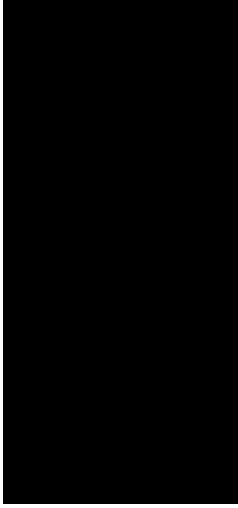
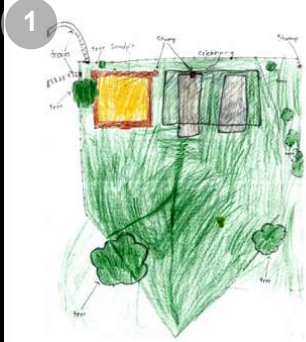
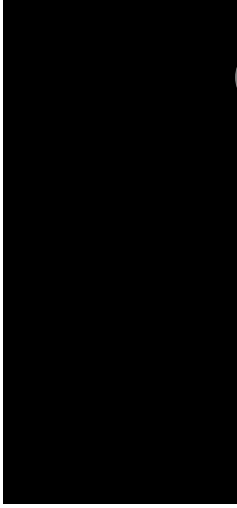
Annotations

1 Annotation 1
Identifies a need or opportunity with teacher assistance and proposes ideas to create a designed solution to solve a problem with the sandpit



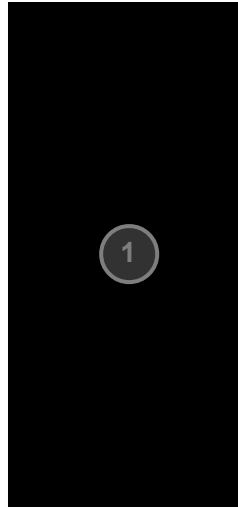
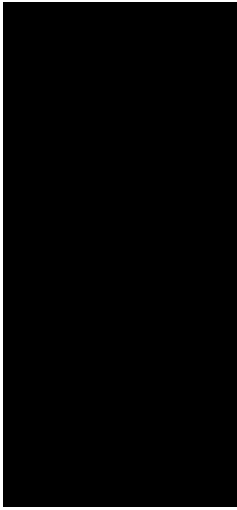
Annotations

1 Annotation 1
Explores the problem and experiments with a solution



Annotations

1 Annotation 1
Draws an aerial view of the sandpit and a possible solution with teacher assistance



Annotations

- 1 Annotation 1**
Models, with teacher assistance, the proposed solution to the flooding sandpit problem