Home Among the Gum Trees

MSTIE Project Documentation

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Faculty of Education, Bendigo

MSTIE Project Documentation

Title: *Home among the gum trees*

Levels 3 and 4: Science, Mathematics, English, Design and Technologies, Personal and Social Capability, Critical and Creative Thinking.

Contents

School of Education - MSTIE Project: Integrated Unit Contract

MSTIE PROJECT OVERVIEW	
Title:	Home Among the Gum Trees
Year Level:	Level 3/4
Student Team:	Ashleigh Williamson and Stephanie McKenzie
School:	[redacted]
Teacher:	Ryan Gow
Duration:	3 weeks

Brief Outline of Project

Students learn about living things, how they can be grouped and how they interact with each other and the environment. Students will grow a seed and raise some tadpoles, while observing and recording the changes that occur during their life cycles. Working in groups, students create a designed solution for the garden outside their classroom and a habitat for the possums who live in the school. They use a range of reference sources, including the internet, and apply the information to ensure their plant choices and designed solutions will be suitable.

Strands and Achievement Standards This unit will address strands and achievement standards from at least three Learning Areas and two components from the Capabilities and Cross-curriculum Priorities	
Learning Areas	
Science (Biological sciences)	*Living things can be grouped on the basis of observable features and can be distinguished from non-living things (VCSSU057)* *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)*
Mathematics (Number and algebra)	*Measure, order and compare objects using familiar metric units of length, area, mass and capacity (VCMMG140)* *Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (VCMMG165)*
English	*Incorporate new vocabulary from a range of sources, including vocabulary encountered in research, into own texts (VCELA293)* *Interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and use interaction skills (VCELY307)* *Plan, rehearse and deliver presentations incorporating learned content and taking into account the particular audiences and purposes such as informative, persuasive and imaginative, including multimodal elements (VCELY308)*
Design and Technologies (Creating designed solutions)	*Investigate the suitability of materials, systems, components, tools and equipment for a range of purposes (VCDSTC027)* *Critique needs or opportunities for designing and explore and test a variety of materials, components, tools and equipment and the techniques needed to create designed solutions (VCDSCD028)* *Generate, develop, and communicate design ideas and decisions using appropriate technical terms and graphical representation techniques (VCDSCD029)*
Capabilities and Cross-curriculum Priorities	
Personal and Social Capability (Collaboration)	*Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*
Critical and Creative Thinking (Meta-cognition)	*Investigate different techniques to sort facts and extend known ideas to generate novel and imaginative ideas (VCCCTQ012)*

MSTIE Log		
Week	**Ashleigh**	**Stephanie**
Pre-semester	18/6/18 - Emailed placement school to arrange first meeting.	
	20/6/18 - Emailed mentor teacher to confirm meeting time.	
	22/6/18 - Visited mentor teacher and placement class to touch base and meet students	
	24/7/18 - Emailed mentor teacher to confirm first MSTIE half day.	
1	1/8/18 - Visited placement school for first MSTIE half day.	
		2/8/18 - Set up MSTIE documentation in Google document to allow team members to collaborate.
	3/8/18 - Began work on team contract and unit plan.	3/8/18 - Began work on team contract and unit plan.
2	8/8/18 - Worked on unit plan and team contract. - Visited placement school for second MSTIE half day. Ran mentor teacher through unit plan and had team contract signed.	
3	15/8/18 - Visited placement school for third MSTIE half day.	13/8/18 - Visited placement school for third MSTIE half day.
	15/8/18 - MSTIE team meeting. Emailed catchment management authority and Aboriginal educator. Had contract signed by Simon.	
4	22/8/18 - Visited placement school for fourth MSTIE half day.	20/8/18 Visited placement school for fourth MSTIE half day.
5	29/8/18 - MSTIE team meeting - worked on MSTIE unit and documentation	
	29/8/18 - Visited placement school for fifth MSTIE half day.	
6	5/9/18 - MSTIE team meeting - worked on MSTIE unit and documentation	
	5/9/18 - Visited placement school for sixth MSTIE half day.	
7	11/9/18 - Organised school incursion with North Central Catchment Management Authority.	12/9/18 - Worked on unit plan and emailed to mentor teacher.
8	17/9/18 - Discussed designation of work tasks. Discussed topics for incursion speaker. Collected resources for exemplar possum habitat.	
		18/9/18 - Worked on unit plan. Emailed mentor teacher.
9	3/10/18 - Spent full day completing unit plan, lesson plans and assessment items	
Placement Week 1	8/10/18 - Taught lesson 1 - began **scientific investigation** about plant life cycles. 9/10/18 - Taught lesson 2 - **Excursion** to Rosalind park.	

	10/10/18 - Taught lessons 3 and 4 - **Incursion** with speaker from North Central Catchment Management Authority. 11/10/18 - Taught lesson 5 - Classifying living and non-living things outside in the schoolyard. 12/10/18 - Consolidated learning for the week and had students ensure their tadpole and seed observations were up to date.
Placement Week 2	15/10/18 - Taught lesson 6 - gathered information about possums. 16/10/18 - Taught lesson 7 - explanation of plant life cycles. 17/10/18 - Taught lesson 8 - discussed **controversial issue** of the plan to eradicate possums from New Zealand by 2050. - Taught lesson 9 - first lesson to include design and technology. Students demonstrated their understanding of how possums interact with their habitat. 18/10/18 - Taught lesson 10 - incorporated the design cycle into their learning about living things by encouraging students to create detailed blueprints of a possum habitat. 19/10/18 - Taught lesson 11 - supported students in building their possum habitat prototypes, encouraging them to refer to the information they had gathered about possums earlier in the unit.
Placement Week 3	22/10/18 - ensured students updated both life cycle recording sheets and continued their three-week scientific investigations. Went to a local nursery to purchase native plants for the class garden. 23/10/18 - Taught lesson 12 - supported students to plant native plants in the garden, ensuring they considered factors such as sun and size of the plants. 24/10/18 - Taught lesson 13 - students analysed and evaluated their design and technology artefacts in light of what they have learnt throughout the unit. - Taught lesson 14 (part a) - Supported students to begin work on their final presentations to demonstrate their learning throughout the unit. 25/10/18 - Taught lesson 14 (part b) - Supported students to finalise their final presentation plans to demonstrate their learning throughout the unit. - Taught lesson 15 (part a) - assessed student overall learning through their final presentations. 26/10/18- Taught lesson 15 (part b) - assessed student overall learning through their final presentations. - Finalised all outstanding work, including group work self assessment, seed life cycle and frog life cycle recording sheets.

MSTIE INTEGRATED UNIT OVERVIEW	
Title:	Home Among the Gum Trees
Focus:	Biological sciences (science) Creating designed solutions (design and technology)
Year Level:	Level 3/4
Student Team:	Ashleigh Williamson and Stephanie McKenzie
School:	[redacted]
Teacher:	Ryan Gow
Duration:	3 weeks

Introduction

In *Home Among the Gum Trees*, students learn about animal and plant life cycles and the ways these living things interact in the environment. Working individually, students plant a seed and record observations about its life cycle. Students also monitor and record observations about the life cycle of a tadpole. In groups, students apply their design ideas and research to reinvigorate a neglected garden outside their classroom with native plants. Students also use the design cycle to create a possum habitat for the furry friends seen near the garden.

This unit provides opportunities for students to demonstrate Victorian Curriculum achievement standards in Science, Design and Technologies, English, Geography, Mathematics, Critical and Creative Thinking and Personal and Social Capability.

Key Understandings from science and design and technologies

The key concepts this unit covers are:

Science:

- Living things can be grouped on the basis of observable features
- Living things can be distinguished from non-living things
- Different living things have different life cycles
- Living things depend on each other and the environment to survive
- Exploration of the different parts that make up a flower

Design and Technologies:

- What is the design cycle and how is it used to create a designed solution
- Generate, develop, and communicate design ideas
- Analyse and evaluate design ideas, processes and solutions
- Safely use tools and equipment

Possible Science Misconceptions

- All seeds have the same life cycle, specifically that they all grow at the same rate.
- Tadpoles grow to become frogs.
- Distinguishing between living and non-living things.
- That living and non-living things have symbiotic relationships that contribute to the health of an environment.
- That possums are only native to Australia and only live in trees.
- Assuming that all plants can grow anywhere in any type of climate and environment.

Strands and Achievement Standards This unit will address strands and achievement standards from at least three Learning Areas and two components from the Capabilities and Cross-curriculum Priorities	
Learning Areas	
Science	***Science understanding (biological sciences)*** *Living things can be grouped on the basis of observable features and can be distinguished from non-living things (VCSSU057)* *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Science inquiry skills*** *With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (VCSIS065)* *Safely use appropriate materials, tools, equipment and technologies (VCSIS067)* *Compare results with predictions, suggesting possible reasons for findings (VCSIS070)* *Represent and communicate observations, ideas and findings to show patterns and relationships using formal and informal scientific language (VCSIS072)*
Mathematics	***Measurement and geometry (using units of measurement)*** *Measure, order and compare objects using familiar metric units of length, area, mass and capacity (VCMMG140)* *Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (VCMMG165)*
English	***Reading and viewing*** ***Literacy (interpreting, analysing, evaluating)*** *Use comprehension strategies to build literal and inferred meaning to expand content knowledge, integrating and linking ideas and analysing and evaluating texts (VCELY288)* ***Writing*** ***Language (expressing and developing ideas)*** *Incorporate new vocabulary from a range of sources, including vocabulary encountered in research, into own texts (VCELA293)* ***Literacy (creating texts)*** *Plan, draft and publish imaginative, informative and persuasive texts containing key information and supporting details for a widening range of audiences, demonstrating increasing control over text structures and language features (VCELY299)* *Reread and edit for meaning by adding, deleting or moving words or word groups to improve content and structure (VCELY300)* *Use a range of software including word processing programs to construct, edit and publish written text, and select, edit and place visual, print and audio elements (VCELY302)* ***Speaking and listening*** ***Literacy (interacting with others)*** *Plan, rehearse and deliver presentations incorporating learned content and taking into account the particular audiences and purposes such as informative, persuasive and imaginative, including multimodal elements (VCELY308)*
Design and Technologies	***Technologies contexts (materials and technologies specialisations)*** *Investigate the suitability of materials, systems, components, tools and equipment for a range of purposes (VCDSTC027)* ***Creating designed solutions*** ***Investigating***

	Critique needs or opportunities for designing and explore and test a variety of materials, components, tools and equipment and the techniques needed to create designed solutions (VCDSCD028) ***Generating*** *Generate, develop, and communicate design ideas and decisions using appropriate technical terms and graphical representation techniques (VCDSCD029)* ***Producing*** *Select and use materials, components, tools and equipment using safe work practices to produce designed solutions (VCDSCD030)* ***Evaluating*** *Evaluate design ideas, processes and solutions based on criteria for success developed with guidance and including care for the environment and communities (VCDSCD031)* ***Planning and managing*** *Plan a sequence of production steps when making designed solutions (VCDSCD032)*
Capabilities and cross-curriculum priorities	
Personal and Social Capability	***Social awareness and management (collaboration)*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*
Critical and Creative Thinking	***Questions and Possibilities*** *Construct and use open and closed questions for different purposes (VCCCTQ010)* *Investigate different techniques to sort facts and extend known ideas to generate novel and imaginative ideas (VCCCTQ012)* ***Reasoning*** *Identify and use 'If, then…' and 'what if…' reasoning (VCCCTR016)* *Explore distinctions when organising and sorting information and ideas from a range of sources (VCCCTR017)*

UNIT AT A GLANCE*		
Phase	**Lesson**	**At a glance**
ENGAGE	**Lesson 1:** Sowing seeds of knowledge	To capture students' interest and find out what they think they know about the life cycles of plants and how living things can be grouped on the basis of observable features.
ENGAGE	**Lesson 2:** Wild things	To engage students in the unit and establish their prior knowledge about the features, growth and life cycles of different living things and how they can be grouped and classified.
EXPLORE	**Lesson 3:** Flower power	To provide hands-on, shared experiences and elicit further student questions about plant parts, plant growth and the life cycle of plants.
EXPLORE	**Lesson 4:** A tad exciting	To provide hands-on, shared experiences and encourage students to ask questions about the life cycle of frogs and begin making scientific observations.
EXPLORE	**Lesson 5:** Nature calls	To provide hands-on, shared experiences by observing and discussing variations between living and non-living things and how their features allow them to be grouped, as well as exploring the idea of symbiotic relationships.
EXPLAIN	**Lesson 6:** Possum magic	To encourage students to ask questions about what possums eat, where they live and how they survive.
EXPLAIN	**Lesson 7:** Cycles of life	To support student understanding by introducing specific terminology about plant and animal reproduction, plant and animal life cycles and scientific terminology.
ELABORATE	**Lesson 8:** Home for the possums	To support students to plan and conduct an investigation about a specific animal, its habitat and issues that affect it.
ELABORATE	**Lesson 9:** Can we build it?	To support students to research the constraints and considerations of possum habitats and how possums interact with the environment around them.
ELABORATE	**Lesson 10:** To the drawing board	To support students to explore the suitability of different plants and habitats for a specific garden and a specific animal.
ELABORATE	**Lesson 11:** Ready, set, build!	To support students to create a design for a garden and begin constructing a model possum habitat to show their learning so far.
ELABORATE	**Lesson 12:** Green thumbs	To support students to complete and action their garden and possum habitat designs.
ELABORATE	**Lesson 13:** Finished products	To support students to reflect on and analyse their garden and habitat designs, based on their learning throughout the unit.
EVALUATE	**Lesson 14:** In today's news...	To provide opportunities for students to represent what they know about the life cycles of living things and how living things can be grouped on the basis of observable features and can be distinguished from non-living things. To reflect on their learning during the unit.
EVALUATE	**Lesson 15:** Bringing it all together	

UNIT PLAN - TEACHING, LEARNING AND ASSESSMENT ACTIVITIES				
	Activities	**Learning Areas** *Capabilities and Cross Curriculum priorities (Strands and sub-strands)*	**Assessment Criteria** (based on e.g. achievement standards)	**Assessment routines and records (Strategies and Evidence)**
ENGAGE Create interest and stimulate curiosity. Raise questions. Reveal student ideas and beliefs. Compare students' ideas.	***Lesson 1: Sowing seeds of knowledge*** - Students will sort a collection of artefacts into categories of their choice. - Students will sort a collection of artefacts into living and non-living things. - Students will complete the T and W of a class TWLH chart. Each child will be given sticky notes and will write their T and W points on a named sticky note and add it to the class chart - Introduce manager, speaker, director roles - Ask students to get into small groups and give each group a collection of different seeds. Students observe the differences between the seeds, - Students complete the "predict" section of their plant life cycle recording log, by predicting with a reason what they think will happen to their seed. - Students each plant a seed in cotton wool in a plastic cup and record what it looks like on the plant life cycle recording sheet.	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking.* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Questioning and predicting* *Capability: Personal and Social.*	***Science*** *Living things can be grouped on the basis of observable features and can be distinguished from non-living things (VCSSU057)* *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Critical and creative thinking capability*** *Construct and use open and closed questions for different purposes (VCCCTQ010)* *Identify and use 'If, then…' and 'what if…' reasoning (VCCCTR016)* ***Science*** *With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (VCSIS065)* *Use a range of methods including tables and column graphs to represent data and to identify patterns and trends (VCSIS069)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	***Diagnostic****: Capture the students' interest and find out what they think they know about the life cycles of plants and how living things depend on each other and the environment to survive by asking students to sort artefacts into living and non-living groups, filling in the T and W columns of a TWLH chart and predicting with a reason what will happen to a seed they will be growing.* **Evidence:** - Photo of each student's grouping of artefacts - Photo of TWLH chart showing at least one named sticky note per student - One plant life cycle POE chart per student - One life cycle recording template per student - Observational notes about students interacting during group discussions
	Lesson 2: Wild things - Students will spend time in Rosalind Park collecting samples or photos of living and non-living things (e.g. rocks, bugs, plant clippings, seeds). - Students will bring items back to the classroom and discuss how they think the different items are related or	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking.*	***Science*** *Living things can be grouped on the basis of observable features and can be distinguished from non-living things (VCSSU057)* *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)*	***Diagnostic:*** *Engage students in the unit and establish their prior knowledge about the features, growth and life cycles of different living things and how they can be grouped and classified, by asking students to collect items in Rosalind Park and then discussing and grouping them. Introduce tadpoles to the class and have them*

	unrelated and how they might interact with each other. - Students complete the "predict" section of their tadpole life cycle recording worksheet, by predicting with a reason what they think will happen to the tadpoles in the video at: https://www.youtube.com/watch?v=wAcwjWi6I9Y Daily - Students add to the T and W sections of the TWLH chart. Daily - students record changes to their seeds on the life cycle recording sheet	*Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Questioning and predicting* *Capability: Personal and Social.*	***Critical and creative thinking capability*** *Construct and use open and closed questions for different purposes (VCCCTQ010)* *Identify and use 'If, then…' and 'what if…' reasoning (VCCCTR016)* ***Science*** *With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (VCSIS065)* *Safely use appropriate materials, tools, equipment and technologies (VCSIS067)* *Use a range of methods including tables and column graphs to represent data and to identify patterns and trends (VCSIS069)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	*predict with a reason what will happen, so establish prior knowledge about animal life cycles.* **Evidence:** - Photos of students' collections of items from the park - Observational notes about class discussions about how items are related - Photo of TWLH chart - One tadpole life cycle recording worksheet per student
EXPLORE Experience the phenomenon or concept. Explore questions and test students' ideas. Investigate and solve problems.	***Lesson 3: Flower power*** - Students will create a set of criteria they think apply to classifying living and non-living things. - Students will work in small groups and look at bisected flowers. They will discuss what they think the different parts of the plants are. - Students will label what they think plant parts might be and what they might do on a diagram. - Students continue to add to the T and W columns of the TWLH chart. Daily - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking.* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Questioning and predicting* *Capability: Personal and Social.*	***Science*** *Living things can be grouped on the basis of observable features and can be distinguished from non-living things (VCSSU057)* *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Critical and creative thinking capability*** *Investigate different techniques to sort facts and extend known ideas to generate novel and imaginative ideas (VCCCTQ012)* *Identify and use 'If, then…' and 'what if…' reasoning (VCCCTR016)* ***Science*** *With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (VCSIS065)* *Safely use appropriate materials, tools, equipment and technologies (VCSIS067)* *Use a range of methods including tables and column graphs to represent data and to identify patterns and trends (VCSIS069)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	***Formative****: Provide students with the opportunity to have hands-on experience with different plant parts and to make scientific observations. Encourage students to discuss the different parts of a plant and discuss what they believe the different parts of the plants do.* **Evidence:** - Criteria for classifying living and non-living things - Labelled plant diagram - Observational notes about class discussion of plant parts.

	Lesson 4: A tad exciting - Students listen to a guest speaker from the North Central Catchment Management Authority. - Students record any questions they want to explore in the W column of the TWLH chart <u>Daily</u> - students record changes to their seeds and tadpoles on the life cycle recording sheets **<u>Please note</u>**: This lesson would ideally have been included in the Explain phase, however due to speaker availability it was necessary to move the lesson forward.	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Questioning and predicting* *Capability: Personal and Social.*	***Science*** *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Critical and creative thinking capability*** *Investigate different techniques to sort facts and extend known ideas to generate novel and imaginative ideas (VCCCTQ012)* ***Science*** *With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (VCSIS065)* *Safely use appropriate materials, tools, equipment and technologies (VCSIS067)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	***Formative and summative:*** *Encourage students to engage in hands-on, shared experiences, ask questions about frog life cycles and begin making scientific observations.* **Evidence:** - Model of frog at each stage of the life cycle - Photo of TWLH chart - Observational notes about student participation, questions and observations
	Lesson 5: Nature calls - Students take the criteria they developed as a class outside with them and observe living and non-living things in the garden. They test their criteria. - Students observe variations in features of plants and animals. - Students discuss the roles of the different living things they observe in the garden and begin to record their own terminology to describe and group the different living things within the habitat. - Students observe symbiotic relationships (e.g. tree provides shelter for possums and possums fertilise the tree) - Students continue to add to the T and W columns of the TWLH chart. <u>Daily</u> - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking.* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Questioning and predicting* *Capability: Personal and Social.*	***Science*** *Living things can be grouped on the basis of observable features and can be distinguished from non-living things (VCSSU057)* *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Critical and creative thinking capability*** *Investigate different techniques to sort facts and extend known ideas to generate novel and imaginative ideas (VCCCTQ012)* *Explore distinctions when organising and sorting information and ideas from a range of sources (VCCCTR017)* ***Science*** *With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (VCSIS065)* *Safely use appropriate materials, tools, equipment and technologies (VCSIS067)* *Use a range of methods including tables and column graphs to represent data and to identify patterns and trends (VCSIS069)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	***Formative and summative:*** *Encourage students to create their own criteria for classifying living and non-living things, using their own language, and testing their criteria in a hands-on environment. Allow students to observe how different living things interact in the garden and encourage observation about the relationships between living things and their environment.* **Evidence:** - Table showing living and non-living things grouped according to class criteria to demonstrate understanding of the difference between living and non-living things. - Observational notes about students' observations and discussions about how different living things interact within the garden.

EXPLAIN Compare ideas. Introduce definitions and concept names. Construct explanations and justify them in terms of observations and data.	***Lesson 6: Possum magic*** - Students will discuss what they know about possums - diet, habitat, behaviour, etc and teachers will introduce the idea that we will be building a possum habitat prototype. - Touch on issues with possum overpopulation in NZ - Have students look through some texts about possums and identify key information about them on a class chart https://www.wildlife.vic.gov.au/managing-wildlife/possums https://www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/native-animal-facts/brush-tailed-possum During literacy blocks - students read informative texts to research information Daily - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking.* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Questioning and predicting* *Capability: Personal and Social.*	***Science*** *Living things can be grouped on the basis of observable features and can be distinguished from non-living things (VCSSU057)* *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Critical and creative thinking capability*** *Investigate different techniques to sort facts and extend known ideas to generate novel and imaginative ideas (VCCCTQ012)* *Explore distinctions when organising and sorting information and ideas from a range of sources (VCCCTR017)* ***Science*** *With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (VCSIS065)* *Use a range of methods including tables and column graphs to represent data and to identify patterns and trends (VCSIS069)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	***Formative:*** *Encourage students to work as a group to collect information about possums to help them when they are planning their possum habitats. Provide relevant texts and observe how students are able to extract the information they need to help with their planning later in the unit.* **Evidence:** - Class chart showing key information about possums - Observational notes about students' ability to work in groups.

	Lesson 7: Cycles of life - Students watch selected portions of the video "Flowering" from David Attenborough's *Secret Life of Plants* https://latrobe.kanopy.com/video/private-life-plants-flowering - Provide books/selected texts for students to find scientific language - Discuss the task of creating a possum habitat a little more. Still only to establish interest and research further about possums, not start the task - Students begin adding to the L and H columns of TWLH chart <u>During literacy blocks</u> - students read informative texts to research information <u>Daily</u> - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking.* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Questioning and predicting* *Capability: Personal and Social.*	***Science*** *Living things can be grouped on the basis of observable features and can be distinguished from non-living things (VCSSU057)* *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Critical and creative thinking capability*** *Investigate different techniques to sort facts and extend known ideas to generate novel and imaginative ideas (VCCCTQ012)* *Explore distinctions when organising and sorting information and ideas from a range of sources (VCCCTR017)* ***Science*** *Use a range of methods including tables and column graphs to represent data and to identify patterns and trends (VCSIS069)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	***Formative:*** *Provide students with access to texts that help them to develop scientific explanations for their observations about life cycles and about how living and non-living things interact with each other. Encourage students to record new language and new information.* **Evidence:** - Class TWLH chart
ELABORATE Use and apply concepts and explanations in new contexts. Reconstruct and extend explanations to new contexts.	***Lesson 8: Home for the possums*** - Elaborate on the idea of creating a prototype possum habitat and improving the health of the garden. - Discuss problems of possums in New Zealand (controversial issue) - Students add to the L and H columns of TWLH chart <u>During literacy blocks</u> - students read informative texts to research information <u>Daily</u> - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Science as a human endeavour* *Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking.* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Questioning and predicting* *Capability: Personal and Social.*	***Science*** *Science knowledge helps people to understand the effects of their actions (VCSSU056)* ***Science*** *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Critical and creative thinking capability*** *Explore distinctions when organising and sorting information and ideas from a range of sources (VCCCTR017)* *Identify and use 'If, then…' and 'what if…' reasoning (VCCCTR016)* ***Science*** *With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (VCSIS065)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	**Summative:** *Provide students with the opportunity to discuss the issues around possums in New Zealand and engage in critical and creative thinking.Encourage students to ask questions, discuss hypothetical scenarios with classmates and add the to TWLH chart.* **Evidence:** - Observe student interactions and use of language about how living things interact with each other and the environment. - Observe students and their use of "If, then…" and "what if…" reasoning. - Student analysis of how they worked in groups based on the criteria provided.

	Lesson 9: Can we build it? - Establish client and context for design cycle (garden, tree and possums) - Discuss "the problem" - possums living in the classroom roof - can't be moved more than 50 metres away - Define and investigate constraints and considerations - Students add to the L and H columns of TWLH chart During literacy blocks - students read informative texts to research information Daily - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Science as a human endeavour* *Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking.* *Learning Area: Design and Technologies* *Strand: Creating Designed Solutions* *Sub-strand: Investigating* *Capability: Personal and Social.*	***Science*** *Science knowledge helps people to understand the effects of their actions (VCSSU056)* ***Science*** *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Critical and creative thinking capability*** *Investigate a range of problem-solving strategies, including brainstorming, identifying, comparing and selecting options, and developing and testing hypotheses (VCCCTM020)* ***Design and Technologies*** *Critique needs or opportunities for designing and explore and test a variety of materials, components, tools and equipment and the techniques needed to create designed solutions (VCDSCD028)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	**Formative:** *Encourage students to think about the context of the "problem" and create an extensive list of constraints and considerations that will inform their designed solution* **Evidence:** - Student lists of constraints and considerations - Observe students during brainstorming and make observational notes
	Lesson 10: To the drawing board - Create blueprints for layout of garden and for their possum habitats. Decide about plants to use in the garden. - Students add to the L and H columns of TWLH chart During literacy blocks - students read informative texts to research information Daily - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Critical and creative thinking* *Learning Area: Design and Technologies* *Strand: Creating Designed Solutions* *Sub-strand: Investigating and Generating* *Capability: Personal and Social*	***Science*** *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Critical and creative thinking capability*** *Investigate a range of problem-solving strategies, including brainstorming, identifying, comparing and selecting options, and developing and testing hypotheses (VCCCTM020)* ***Design and Technologies*** *Critique needs or opportunities for designing and explore and test a variety of materials, components, tools and equipment and the techniques needed to create designed solutions (VCDSCD028)* *Generate, develop, and communicate design ideas and decisions using appropriate technical terms and graphical representation techniques (VCDSCD029)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)*	**Formative and summative:** *Students work in small groups to create blueprints for a designed solution, remembering to consider how living things interact with each other and the environment. Students demonstrate their ability to work with other class members and to apply information they have learnt to a new context.* **Evidence:** - Observational notes about students' ability to work in groups and to problem-solve - Blueprints for possum habitat and garden

	Lesson 11: Ready, set, build! - Whole class discussion to come up with a cohesive design for the garden - Begin construction of possum habitats - Students add to the L and H columns of TWLH chart <u>During literacy blocks</u> - students read informative texts to research information <u>Daily</u> - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Personal and Social* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Planning and conducting and Communicating* *Capability: Critical and creative thinking* *Learning Area: Design and Technologies* *Strand: Creating Designed Solutions* *Sub-strand: Producing*	***Science*** *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)* ***Science*** *Safely use appropriate materials, tools, equipment and technologies (VCSIS067)* *Represent and communicate observations, ideas and findings to show patterns and relationships using formal and informal scientific language (VCSIS072)* ***Critical and creative thinking capability*** *Investigate different techniques to sort facts and extend known ideas to generate novel and imaginative ideas (VCCCTQ012)* ***Design and Technologies*** *Select and use materials, components, tools and equipment using safe work practices to produce designed solutions (VCDSCD030)*	**Formative/summative:** *Provide students with the opportunity to debate about how the garden should be designed and come up with a cohesive plan. This will require students to use reasoning, persuasive language and cooperation.* **Evidence:** - Finalised garden plan - Possum habitats under construction
	Lesson 12: Green thumbs - Plant garden according to class design - Show exemplar possum habitat - Finish making possum habitat prototypes - Students add to the L and H columns of TWLH chart <u>During literacy blocks</u> - students read informative texts to research information <u>Daily</u> - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Personal and Social* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Planning and conducting* *Capability: Critical and creative thinking* *Learning Area: Design and Technologies*	***Science*** *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)* ***Science*** Safely use appropriate materials, tools, equipment and technologies (VCSIS067) ***Critical and creative thinking capability*** Investigate different techniques to sort facts and extend known ideas to generate novel and imaginative ideas (VCCCTQ012) ***Design and Technologies***	**Summative:** *Allow students to plant out the garden and encourage them to work together to use their garden plan. Show students and exemplar possum habitat to encourage them to think about any final changes they need to make to their habitats before finishing them.* **Evidence:** - Finished garden - Finished possum habitats

		Strand: Creating Designed Solutions *Sub-strand: Producing*	*Select and use materials, components, tools and equipment using safe work practices to produce designed solutions (VCDSCD030)*	
	Lesson 13: Finished products - Finalise possum habitats - Analyse as designer and discuss changes that could have been made - Evaluate as end user (possum) - Students add to the L and H columns of TWLH chart <u>Daily</u> - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences* *Capability: Personal and Social* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Planning and conducting and Analysing and evaluating* *Capability: Critical and creative thinking* *Learning Area: Design and Technologies* *Strand: Creating Designed Solutions* *Sub-strand: Producing and Evaluating*	***Science*** *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)* ***Science*** *Safely use appropriate materials, tools, equipment and technologies (VCSIS067)* *Compare results with predictions, suggesting possible reasons for findings (VCSIS070)* *Reflect on an investigation, including whether a test was fair or not (VCSIS071)* ***Critical and creative thinking capability*** Construct and use open and closed questions for different purposes (VCCCTQ010) ***Design and Technologies*** *Select and use materials, components, tools and equipment using safe work practices to produce designed solutions (VCDSCD030)* *Evaluate design ideas, processes and solutions based on criteria for success developed with guidance and including care for the environment and communities (VCDSCD031)*	**Summative:** *encourage students to use open questions to reflect on their learning and the success of their designed solutions.* **Evidence:** - Completed possum habitats - Student analysis and evaluations of their possum habitats

EVALUATE The teacher looks for evidence of changes in students' ideas, beliefs and skills. Students review and evaluate their own learning.	***Lesson 14: In today's news…*** Create artefact (eg radio interview, video, news bulletin) - Students add to the L and H columns of TWLH chart Daily - students record changes to their seeds and tadpoles on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences and Science as a human endeavour* *Capability: Personal and Social* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Planning and conducting and Analysing and evaluating* *Capability: Critical and creative thinking*	***Science*** *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* Science knowledge helps people to understand the effects of their actions (VCSSU056) ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)* ***Science*** *Safely use appropriate materials, tools, equipment and technologies (VCSIS067)* *Compare results with predictions, suggesting possible reasons for findings (VCSIS070)* *Reflect on an investigation, including whether a test was fair or not (VCSIS071)* ***Critical and creative thinking capability*** Construct and use open and closed questions for different purposes (VCCCTQ010)	**Summative:** Provide students with an opportunity to show what they have learnt throughout the unit and bring together the information and investigations they have undertaken throughout the unit. **Evidence:** - Artefact to be presented in the following lesson - TWLH chart
	Lesson 15: Bringing it all together - Present artefact - Get students to present their key learnings from the unit - Students add to the L and H columns of TWLH chart - Students complete the explain section on the life cycle recording sheets	*Learning Area: Science* *Strand: Science Understanding.* *Sub-strand: Biological sciences and Science as a human endeavour* *Capability: Personal and Social* *Learning Area: Science* *Strand: Science Inquiry Skills* *Sub-strand: Planning and conducting and Analysing and evaluating* *Capability: Critical and creative thinking*	***Science*** *Different living things have different life cycles and depend on each other and the environment to survive (VCSSU058)* Science knowledge helps people to understand the effects of their actions (VCSSU056) *Represent and communicate observations, ideas and findings to show patterns and relationships using formal and informal scientific language (VCSIS072)* ***Personal and Social Capability*** *Demonstrate skills for effective participation in group tasks and use criteria provided to reflect on the effectiveness of the teams in which they participate (VCPSCSO023)* ***Science*** *Safely use appropriate materials, tools, equipment and technologies (VCSIS067)* *Compare results with predictions, suggesting possible reasons for findings (VCSIS070)* *Reflect on an investigation, including whether a test was fair or not (VCSIS071)* ***Critical and creative thinking capability*** Construct and use open and closed questions for different purposes (VCCCTQ010)	**Summative:** Students present their designed solution and share their key learnings from the unit. They finalise their observations about plant and animal life cycles and add their final learnings to the class TWLH chart. This lesson provides students with the opportunity to celebrate their learning and share it as a class. **Evidence:** - Self-assessed rubrics for student presentations - Teacher-assessed rubrics for student presentations - Completed TWLH chart - Completed plant and tadpole life cycle recording sheets

UNIT RESOURCES (References)

Websites

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Parks and Wildlife Service. (2010). Brushtail possum. Retrieved from https://www.parks.tas.gov.au/?base=4871

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Books and Materials
Ziplock bags
Seeds
Cotton wool
Plastic cups
Miscellaneous living and non-living items
iPhone
Sticky notes
TWLH chart
POE charts
Plant life cycle log templates
Clipboard
Water
Permanent marker
Grey lead pencils
Clipboard
Writing paper for observation notes
Pen
Interactive whiteboard
Whistle
Miscellaneous objects collected from the park
Scalpel
Lillies
Plant diagrams
Butcher's paper
TWLH chart
Classification criteria sheet
Thank you card for speaker
Worksheets with class criteria
Highlighters
Laptops
Writing book
Information chart
Blue-Tac
Books and other selected texts about plant life cycles
Blueprint handouts
Design cycle handouts and chart
Design cycle chart
Ruler
Rubber
Cardboard boxes
Masking tape
Scissors
Pencils/textas
Extra materials
Plants
Shovels
Garden forks
Hand shovels
Water cans
Soil
Buckets
Metre rulers
Hats
Possum habitat
Group checklists

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Sowing seeds of knowledge

Lesson No: 1

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 8/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. The focus of this lesson is to assess students' prior knowledge of classifying living and non-living things.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for science, critical and creative thinking and personal and social capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Understand the conventions for writing words and sentences using joined letters that are clearly formed and consistent in size (VCELY268)
- Handwrite using clearly-formed joined letters, and develop increased fluency and automaticity (VCELY301)

Success Criteria / Learning outcomes:

Students will:

1. Sort a collection of artefacts into categories of their choice, then sort the same artefacts into living and non-living things.
2. Add to the T and W columns of a class TWLH chart using a named sticky note.
3. Plant a seed and, after predicting what they think will happen to their seed, and record the first entry on their plant life cycle log.

Assessment:

1. Teachers will take photos of each student's grouping of artefacts as assessment evidence of their prior knowledge about living and non-living things.
2. Students will contribute a sticky note each to the T and W columns of the TWLH chart, providing a visual reference point of each individual's prior knowledge and possible misconceptions about plant life cycles and how living things depend on each other and the environment to survive.

3. Students will complete the "predict" section of their plant life cycle log, providing written evidence of their prior knowledge of plant life cycles.		
Procedure:		
Time for each step	**Teacher activities:**	**Learner activities:**
10 minutes	**Engagement:** ● Give each student a ziplock bag of different objects and ask them to sort them into categories of their choice. ● Roam the classroom as students complete the activity and ask open-ended questions about their reasoning. ● Stop the class and instruct students to re-sort their bag of objects into living and non-living things. ● After roaming the classroom, stop everyone and have a discussion about how they sorted their objects differently the first and second time. **(Assessment 1 - take photos after each student sorts their objects the first and second time)**	● Students sort their bag of objects into categories of their choice, then into living and non-living things. ● Students participate in class discussion about how they sorted their objects.
40 minutes	**Procedural steps:** ● Introduce TWLH chart and ask students: *What do you think you know about life cycles of animals/plants and how these things interact in the environment?* *What do you want to know about life cycles of animals/plants and how these things interact in the environment?* ● Give each student two sticky notes and ask them to write a point in response to each of these questions for the T and W columns of the TWLH chart. **(Assessment 2 - a photo of the TWLH chart will be taken after each student has stuck their named notes in the T and W columns)** ● Introduce manager, speaker and	● Students each complete a sticky note to put in the T and W columns of the TWLH chart, making sure their two notes are named. ● Students get into small groups and allocate manager, speaker and

	director roles ● Explain that we will be doing a scientific investigation about plant life cycles. Discuss CMS (Change something, Measure something and leave everything else the same). ● Ask students to form small groups and give each group a collection of different seeds. ● After observing the differences between the seeds, instruct students to complete the "predict" section of their plant life cycle log, predicting what they think will happen to their seed. **(Assessment 3 - photos will be taken of each student's POE chart at the end of the lesson)** ● Show students how they will each plant a seed in cotton wool in a plastic cup and record what it looks like in their plant life cycle log. Roam the classroom to help students. **Conclusion:** ● Bring class back to the floor for a discussion about their seed life cycle predictions. Ask open-ended questions about their reasoning. Explain to students they will fill in their plant life cycle log every day for the next three weeks.	director roles ● Students observe their different seeds. ● Student complete the "predict" section of their plant life cycle log. ● Students plant their seed in cotton wool in a plastic cup and record what it looks like in their plant life cycle log. ● Students participate in class discussion about their seed life cycle predictions, explaining their ideas and reasoning.
10 minutes		
Teacher's resources: Ziplock bags Seeds Cotton wool Plastic cups Miscellaneous living and non-living items iPhone Sticky notes TWLH chart POE charts Plant life cycle log templates Clipboard and pen Water Permanent marker		

Students' resources:
Grey lead pencils

Self-evaluation:

Overview of experience

We found this lesson an engaging way to gauge students' knowledge of living and non-living things. Students seemed to particularly enjoy the activity of classifying items in their ziplock bags and we were able to listen to and observe their reasoning behind how they grouped things each time. This activity provided the stimulus for students to each think about something they know and want to learn for the TWLH chart.

The hands-on nature of the seed-planting activity generated some great discussions among students, hypothesising what they thought their seed would grow into and how long its life cycle could be. We look forward to reading students' seed life cycle logs to track their learning throughout this scientific investigation.

Assessment and learning

We intended to take photos of each student's items the two times they grouped them. However, when we came to collate our assessment, we found we had doubled up taking some photos or missed some students entirely. This meant we had to rely on visual recollections to assess students' prior knowledge.

The TWLH chart and seed life cycle logs provided us with written evidence, which was more effective when assessing students' prior knowledge and misconceptions.

Limitations and recommendations

Being the first day of term and our first day on placement, we felt this lesson was a bit rushed for time. Specifically, the classifying items activity took longer than anticipated, which restricted the time we spent discussing animal and plant life cycles and introducing the TWLH chart. However, students worked cooperatively in groups to plant their seeds and start their POE plant life cycle logs, which provided enough time to finish the lesson with an in-depth reflection.

Another limitation we experienced was with the classifying items activity. Aside from plants, we could not actually place any other living items in the bags, so we improvised with pictures of animals or humans.

Reflecting after this lesson, one recommendation would be to not try to squeeze too many activities into one lesson. We probably could have introduced the TWLH chart into our second lesson and given students enough time to focus on the hands-on engage activities of classifying items and planting seeds.

The future

We will be able to refer to the TWLH chart and seed life cycle logs throughout the unit to assess student learning and misconceptions. Students will also be able to use these resources to monitor and reflect on their learning journey.

Supervising teacher's comments:

You had the students engaged from the very onset! It was a great idea to ~~incl~~ include funny pictures with the plants, etc for categorising and classifying. The open task was a great way to maintain interest and get the students to question with an inquiry-based mindset.

Your introduction of the TWLH chart was clear, consise and fun! The students enjoyed sharing their wonderings with their peers in this way.

Most students could describe and predict some of the changes they will see with their seeds.

Name:_____

Life cycle of a seed

Predict

What do you think will happen to your seed? Why do you think this?

_____

_____

_____

_____

_____

_____

_____

_____

Observe

Record what happens to your seed below.

Date	Picture	What can I notice about the seed?

Date	Picture	What can I notice about the seed?

Date	Picture	What can I notice about the seed?

Date	Picture	What can I notice about the seed?

Explain

What happened to your seed throughout your observations? Why do you think this happened?

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Wild things

Lesson No: 2

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 9/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. This lesson will focus on assessing students' prior knowledge of classifying living and non-living things and how these might interact in the environment.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for science, critical and creative thinking and personal and social capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Understand the conventions for writing words and sentences using joined letters that are clearly formed and consistent in size (VCELY268)
- Handwrite using clearly-formed joined letters, and develop increased fluency and automaticity (VCELY301)

Success Criteria / Learning outcomes:

Students will:

1. Collect samples or photos of living and non-living things from Rosalind Park and discuss how they think different items are related or unrelated and how they might interact in the environment.
2. Make predictions about the life cycle of tadpoles using a life cycle recording worksheet
3. Add to the T and W columns of the TWLH chart from lesson one.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Teachers will take photos of students' collections of objects from Rosalind Park, and make observational notes during the classroom discussion about how items may be related.
2. Teachers will take a photo of each child's life cycle recording sheet after they make predictions about the tadpole life cycle.
3. Teachers will take a photo of the TWLH chart after students add to the T and W columns.

Procedure:		
Time for each step	**Teacher activities:**	**Learner activities:**
5 minutes	**Engagement:** ● Put students in groups of up to four and explain the guidelines and rules of the Rosalind Park excursion. ○ Stay within eyesight of teachers ○ Ask if they are unsure about whether they can take a particular object out of the park ○ Be safe when handling rocks and other objects ○ Listen for the whistle to know when to return ● Count students before leaving the classroom and school grounds to head to Rosalind Park.	● Students listen to guidelines and rules of the excursion and ask any questions they have.
55 minutes	**Procedural steps:** ● Give student groups up to 30 minutes to roam a specified area of Rosalind Park to collect living and non-living things. ● Roam around to make sure students do not leave the confined area and get lost. ● Help students photograph anything that cannot be taken back to the classroom. ● Gather students and count them to ensure everyone is present before leaving the park and returning to the classroom. ● Once back in the classroom, get students to discuss some of the items they collected/photographed and how they think they may be related or unrelated. **(Assessment 1 - photos of students' collections will be taken in the classroom and observations will be written during the discussion)** ● Introduce tadpoles by playing from 0.27-0.36 seconds of the video at: https://www.youtube.com/watch?v=wAcwjWi6I9Y. ● Give students time to write their observations into their tadpole life cycle logs and make predictions	● In groups, students roam a designated area of Rosalind Park collecting and observing living and non-living things. ● Students gather in an orderly fashion to be counted before heading back to the classroom. ● Back in the classroom, students discuss their collections and how specific objects may be related or unrelated. ● Students watch the video segment ● Students write their predictions and observations on their tadpole life cycle worksheets.

5 minutes	about what will happen to the frog eggs. **(Assessment 2 - photos will be taken after students complete the predict section and first observation on their life cycle recording sheets)** **Conclusion:** ● Give each student two sticky notes to add to the T and W columns of the TWLH chart. **(Assessment 3 - a photo of the TWLH chart will be taken after each student has stuck their named notes in the T and W columns)**	● Each student writes on two sticky notes to add to the T and W columns of the TWLH chart.

Teacher's resources:
Clipboard
Writing paper for observation notes
Pen
iPhone
Interactive whiteboard
POE charts
TWLH chart
Sticky notes
Whistle

Students' resources:
Miscellaneous objects collected from the park
Grey lead pencils

Self-evaluation:

Overview of experience

Overall, the students thoroughly enjoyed the excursion and were excited to share their discoveries upon returning to the classroom. Students demonstrated that they had understood the guidelines for safety well and were respectful of the park environment.

Assessment and learning

This excursion presented exciting opportunities to assess student prior knowledge and misconceptions about living and non-living things. Students were able to observe symbiotic relationships, for instance one student remarked "The bats live in the trees and use them as a home and then they poop and it fertilises the tree". Additionally, some students had misconceptions about what was and was not living. For instance, many students thought that rocks, dirt and wind were living things.

Limitations and recommendations

Students stayed in small groups during the excursion, in order to help them to stay safe and not get lost. Unfortunately this meant that when we had our sharing discussion, the more shy students were quite happy to let the other students in their group speak for them about what they had discovered. Next time we could make it clearer that all students would need to share

upon returning to the classroom. Additionally, we had planned to have live tadpoles in the classroom for the duration of the term. However, we were unable to source these and needed to use a video instead, watching small segments each day to mimic what it would have been like to watch them develop over time.

The future

In future lessons, we would certainly aim to incorporate an excursion into the Engage phase, because we noticed just how much students became invested in their learning throughout the unit. Additionally, this lesson has provided an experience that we will be able to continually refer students back to during the unit, so that they can connect their learning to a real-world experience.

Supervising teacher's comments:

Very clear introduction. ~~It was~~ You made the students aware of the expectations regarding safety and interactions between living and non-living things.

—

The students loved their time experiencing living and non-living things in the park. It was amazing to hear the conversation ~~and~~ surrounding this experience.

—

During the reflective discussion it was amazing to hear the misconceptions about what is living and what isn't. Living rocks?! Wow! Dirt? It will be interesting to see how you address these misconceptions.

Name:_____

Life cycle of a tadpole

Predict

What do you think will happen to the eggs? Why do you think this?

_____

_____

_____

_____

_____

_____

_____

_____

Observe
Record what happens to the tadpoles below.

Date	Picture	What can I notice about the tadpoles?

Date	Picture	What can I notice about the tadpoles?

Date	Picture	What can I notice about the tadpoles?

Date	Picture	What can I notice about the tadpoles?

Explain

What happened to the tadpoles throughout your observations? Why do you think this happened?

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Flower power

Lesson No: 3

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 10/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will explore flowers, their different parts and the functions of these.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for science, critical and creative thinking and personal and social capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Listen to and contribute to conversations and discussions to share information and ideas and negotiate in collaborative situations and use interaction skills, including active listening and clear, coherent communications (VCELY275)
- Interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and use interaction skills (VCELY307)

Success Criteria / Learning outcomes:

Students will:

1. Create a set of criteria they think applies to classifying living and non-living things.
2. Label a diagram with what they think the different parts of plants are and what their function is.
3. Add to the T and W columns of the TWLH chart from lessons one and two.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Students will write their own ideas of criteria for classifying living and non-living things, which teachers will photograph as evidence. Student ideas will be used to produce a classroom resource of agreed upon criteria to classify living and non-living things. This resource will be displayed in the classroom as a visual reference point throughout the rest of the unit.

2. Teachers will take observational notes during the class discussion of plant parts and a photo of each student's labelled plant diagram.
3. A teacher will take a photo of the TWLH chart after the T and W columns have been added to.

Procedure:

Time for each step	**Teacher activities:**	**Learner activities:**
10 minutes	**Engagement:** ● Show students a complete flower and explain they are going to explore the inside of it. ● Fishbowl students around a table and bisect the flower.	● Students watch as teacher bisects a flower.
40 minutes	**Procedural steps:** ● Send students back to desks and give them each a bisected flower and a diagram to label. Explain to students they have to label what they think each plant part is and its function. ● Roam classroom and ask students open-ended questions about their reasoning. Do not give them any specific answers or terminology. ● After up to 10 minutes, have a classroom discussion about how students labelled the diagram and their ideas about plant parts. **(Assessment 2 - photos of labelled plant diagrams will be taken at the end of the lesson, while observation notes will be written during the class discussion)** ● Explain to students they will be writing a set of criteria as a class, to help them classify living and non-living things. ● Give each child a piece of paper and ask them to write down at least one criteria for living and non-living things ● Roam the classroom to monitor and support students.	● Students each get a bisected flower and label a diagram ● Students participate in a classroom discussion about its parts and their functions. ● Students each write at least one criteria they think applies to classifying living and non-living things.

10 minutes	● After up to 10 minutes, ask students to share their ideas and write down the agreed upon criteria on butcher's paper to create a classroom resource. **(Assessment 1 - photos of each student's criteria will be taken at the end of the lesson, while the classroom resource will be displayed on a wall for students to reference throughout the unit)** **Conclusion:** ● Give each student two sticky notes to add to the T and W columns of the TWLH chart. **(Assessment 3 - Read new student comments on the TWLH chart and note down any misconceptions or points to clarify in future lessons)**	● Students share their ideas and discuss agreed upon criteria to put on a classroom resource. ● Each student writes on two sticky notes to add to the T and W columns of the TWLH chart.

Teacher's resources:
Scalpel
Lillies
Plant diagrams
Sticky notes
Butcher's paper
Permanent marker
TWLH chart
Classification criteria sheet

Students' resources:
Grey lead pencils

Self-evaluation:
Overview of experience
Students enjoyed the hands-on activity of closely examining the inside of a flower and trying to label its parts and functions on a diagram. The class discussion afterwards showed students had varying levels of knowledge about the flower's parts and their functions.
We particularly enjoyed the second activity where the class started to establish a set of criteria for classifying living and non-living things. Students felt comfortable sharing their ideas and reasoning in a non-threatening environment - some of their abstract thoughts connecting living and non-living things were amazing!

Assessment and learning
The labelled diagram provided evidence of each student's knowledge and misconceptions about flower parts and functions.
To start the chart of criteria to classify living and non-living things, we wanted to focus on students sharing and discussing their ideas to assess their knowledge and misconceptions. In an explain phase lesson, we will scaffold the discussion to direct students' thinking towards the correct criteria that will make up the chart. Students will then be able to refer to this chart to

support their expanding knowledge of classifying living and non-living things.

Limitations and recommendations

We bisected the flowers before the lesson to eliminate the potential safety risks of students using a sharp cutting tool, which meant they did not get the hands-on aspect of doing an actual bisection. We also had to check with our mentor that there were no students with flower or pollen allergies. Fortunately, we did not have to exclude any students from the activity due to allergies.

A limitation of the second activity was that some students simply listed living and non-living things, rather than discussing specific criteria that all living or non-living things have. A recommendation for teaching this lesson again could be to model model more clearly the thought processes we wanted to students to go through to consider criteria of living and non-living things.

The future

This lesson serves as an ideal starting point for students to learn more about plant parts and the different functions of them. More work will also be done to help students establish criteria for living and non-living things, which will be a valuable classroom resource they can refer to throughout the unit when classifying different things in their natural environment.

Supervising teacher's comments:

Your management of the class throughout this session. Moving from a circle for the intro, to optional alternative seating and then whole group for reflection gave the whole session a chilled/relaxed but focussed feel. The students were all on task and engaged. They could share ideas, thoughts and questions. in a safe and positive manner.

—

I love how you provided the students the opportunity to share their deeper thinking and questioning while classifying living and non-living.

—

Seriously, how hard is it to get ideas and conceptual ~~over~~ understandings to the students sometimes?! The Inquiry/wondering process is great, but sometimes students need to be TOLD some things. You are finding a good balance atm.

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: A tad exciting

Lesson No: 4

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 10/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will listen to a speaker from the North Central Catchment Management Authority, about the life cycle of frogs and how different living and non-living things interact in the environment.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)
Please refer to unit plan for science, critical and creative thinking and personal and social capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Listen to and contribute to conversations and discussions to share information and ideas and negotiate in collaborative situations and use interaction skills, including active listening and clear, coherent communications (VCELY275)
- Interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and use interaction skills (VCELY307)

Success Criteria / Learning outcomes:

1. Students will listen to a speaker from the North Central Catchment Management Authority.
2. Students will ask open-ended questions.
3. Students will reflect upon what they learnt during the talk.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Teachers will make observations about students' active listening skills.
2. Teachers will observe questions asked by students during the talk.
3. Students will add learnings and wonderings to the class TWLH chart.

Procedure:		
Time for each step	**Teacher activities:**	**Learner activities:**
5 minutes 45 minutes 10 minutes	**Engagement:** ● Inform students that today we will have a guest speaker and remind them about what active listening looks like. ● Introduce guest speaker. **Procedural steps:** ● Ensure students are using active listening skills and make notes about any new learning that can be reiterated in future lessons. **Conclusion:** ● Ask students to record any new wonderings on the W of the TWLH chart and any new learning on the LH section of the chart **(Assessment 3 - Read new student comments on the TWLH chart and note down any misconceptions or points to clarify in future lessons)**	● Students listen to teacher instructions ● Students welcome guest speaker. ● Students listen to guest speaker and ask open questions. ● Each student writes on two sticky notes to add to the T and W columns of the TWLH chart.
Teacher's resources: TWLH chart Sticky notes Thank you card for speaker **Students' resources:** Grey lead pencil		
Self-evaluation: <u>Overview of experience</u> This session was very successful at engaging the students and sharing information about the lifecycle of frogs. The students enjoyed the speaker, the video and the activity she shared with them about frogs. <u>Assessment and learning</u> Students worked in pairs to create plasticine models of the different stages of the frog life cycle and then explained what they had made. All students were able to relate this information to other learning situations. Photos were taken of some students' models and all student models were observed. <u>Limitations and recommendations</u> Unfortunately this session was unable to be included in the second week of the MSTIE unit in the explain phase, because of speaker availability, which meant that some language was introduced to students earlier than was ideal. However, the richness of the learning experience justified modifying the unit slightly, rather than missing out on this incursion.		

The future

This experience reinforced for us how valuable it can be to bring experts into the classroom, to expose students to new information and ideas. Additionally, the modelling exercise with the plasticine was highly engaging and allowed students to have a hands on experience, despite not having access to live frogs and tadpoles, and is something that we would like to incorporate into our future teaching.

Supervising teacher's comments:

Firstly, great job organising Brit to come in and deliver her presentation to the entire middle department. What an excellent way to tune the students in to this unit!

Ash, your introduction to remind the students of the expectations while listening was very important.

Even though there was a lot of talking from (by) Brit, ~~there~~ the session was engaging for the students. The video and hands-on element broke the lesson up well.

It was a thoughtful and professional touch to have a 'thank you' note ready.

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Nature calls

Lesson No: 5

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 11/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. The focus of this lesson is for students to consolidate their understanding about how to classify living and non-living things.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for science, critical and creative thinking and personal and social capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Listen to and contribute to conversations and discussions to share information and ideas and negotiate in collaborative situations and use interaction skills, including active listening and clear, coherent communications (VCELY275)
- Interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and use interaction skills (VCELY307)

Students at Levels 3 and 4 **Geography**:

- Types of natural vegetation and the significance of vegetation to the environment, the importance of environments to animals and people, and different views on how they can be protected; the use and management of natural resources and waste, and different views on how to do this sustainably (VCGGK082)

Success Criteria / Learning outcomes:

Students will:

1. Observe living and non-living things in the school garden and take note of the variations in features of animals and plants.
2. Discuss the roles of different living things they observe in the garden and record their own terminology to group living things in this habitat.
3. Complete a self-assessment exploring how well they think they have worked within their group and identifying something they can work on moving forward.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Teachers will take a photo of each student's work to assess how they classified living and non-living things in the garden according to the criteria the classroom produced in lesson three.
2. Teachers will take a photo of each student's written observations and terminology about living things in the garden.
3. Teachers will take photos of each students' self-assessment of working in groups.

Procedure:

Time for each step	**Teacher activities:**	**Learner activities:**
10 minutes	**Engagement:** ● Reinforce safety messages and rules for when students are outside making observations in the garden. (For example, demonstrating the correct technique to lift rocks). ● Refer students to the classification criteria they developed as a class in lesson three. Explain they will use this criteria to group living and non-living things in the environment. ● Count students before leaving the classroom.	● Students listen to teacher instructions.
45 minutes	**Procedural steps:** ● Take students outside and give them 15 minutes to observe living and non-living things in the garden. ● Roam around to see how students are using their criteria to classify things. ● Gather students in an orderly fashion and count them before heading back into the classroom. **(Assessment 1 - photos of each student's worksheet with their classifications and observations will be taken at the end of the lesson)** ● Once back in the classroom, get students to discuss symbiotic relationships and the roles of the different things they observed in the garden. ● Roam the classroom as students	● Students use their criteria to classify objects into living and non-living, being sure to check against the criteria and make notes about any objects that don't fit the criteria. ● As a class, students discuss whether any changes need to be made to their criteria. Students also discuss symbiotic relationships and the roles of the different things they observed in the garden. ● Students record their own

	record their own terminology to describe and group the living things in the garden. **(Assessment 2 - photos of each student's written ideas will be taken at the end of the lesson)**	terminology to describe and group the living things in the garden.
5 minutes	**Conclusion:** ● Give each group time to come up with 3 things they think make someone a good group member. Ask students to share and come up with numbered criteria for a good group member.	● Students contribute to class discussion.
	● Ask each student to complete a self-assessment of themselves and how they have been working within their group this week. **(Assessment 3 - photos of student self-assessments)**	● Students complete a self-assessment.

Teacher's resources:
Worksheets with class criteria
TWLH chart
Sticky notes
Clipboard for observational notes
Pen
iPhone

Students' resources:
Grey lead pencil

Self-evaluation:

Overview of experience

We found this lesson was timely after our class was picked to participate in a literacy professional development session in the morning. Students enjoyed the mental break of getting outside and exploring living and non-living things in their school grounds. We noticed students were particularly engaged when classifying things outside, and mentally refreshed when we returned to the classroom to reflect on their observations and self-assess their contribution to the group task.

Assessment and learning

Taking photos of each student's classifications of things they observed in the garden and their ideas about symbiotic relationships provided evidence of their learning. We were able to assess if students applied the criteria they previously established for living and non-living things to these tasks.

Meanwhile, the self-assessment task at the end of the lesson allowed us to cross-check our observations of how students participated in the group activity outside.

Limitations and recommendations

The biggest limitation of this lesson was that students were noticeably mentally fatigued after the

morning's intense literacy lesson. We had to be mindful of finding the right balance between introducing the lesson thoroughly and getting students outside exploring promptly to ensure maximum engagement levels. We also gave students enough time outside, as much for a mental break as well as to make quality observations of living and non-living things.

Students could use their criteria to check their classification of things after returning inside to the classroom. However, if teaching this lesson again, a recommendation could be to provide students with a small version of the chart (either as a photocopied picture or written version) so they could check their classifications according to their criteria while outside making observations.

The future

This lesson provided students with more clarity about classifying living and non-living things. This valuable skill will be useful throughout the rest of the unit, particularly when investigating possums and their interactions with the natural environment.

We think asking students to self-assess their contribution to a group task was also a valuable activity – for the rest of this unit and beyond. Encouraging students to reflect on their ability to cooperate and collaborate with others will hopefully foster growth in these skills when participating in future group tasks.

Supervising teacher's comments:

Even though the focus of the lesson was the same and the activities varied slightly, the content and variety was excellent.

Changing the pace and including some outdoor activity particularly on a good weather day keeps the students focus.

I particularly thought the intro video and quiz engaged the students from the start and made categorizing living + non-living things outside a lot easier (all 3 categories - not just some). A game to conclude (charades) to act out L + NL things was a great inclusive activity. Timing was excellent, judging when the students were ready to move onto another activity.

Overall - well done!

Virginia Wearing.

P.S I love the way you were able to adapt the activity given the super 'busy' morning they'd had

Name: _____

Group work self-assessment

	Always	Sometimes	Never
I listened to the ideas of my group members and shared my ideas respectfully			
When my group was working on an activity I did my best to participate in the task and share the work			
I made sure all members of my group were safe during outside activities			
I spoke respectfully to my fellow group members			

Describe what you did well as a team member: _____

_____

_____

_____

What could you do differently this week to contribute even more to your team: _____

_____

_____

_____

What are some things you think your group could work on to ensure you are all working well as a team?:

_____

_____

_____

_____

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Possum magic

Lesson No: 6

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 15/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. The focus of this lesson is for students to discuss what they know about possums and research key information from texts to compile a class chart.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for science, critical and creative thinking and personal and social capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Read an increasing range of imaginative, informative and persuasive texts by combining phonic, semantic, contextual and grammatical knowledge, using text processing strategies, including confirming, rereading and cross-checking (VCELY256)
- Read different types of texts for specific purposes by combining phonic, semantic, contextual and grammatical knowledge using text processing strategies, including monitoring meaning, skimming, scanning and reviewing (VCELY287)
- Use comprehension strategies to build literal and inferred meaning and begin to evaluate texts by drawing on a growing knowledge of context, text structures and language features (VCELY257)
- Use comprehension strategies to build literal and inferred meaning to expand content knowledge, integrating and linking ideas and analysing and evaluating texts (VCELY288)
- Listen to and contribute to conversations and discussions to share information and ideas and negotiate in collaborative situations and use interaction skills, including active listening and clear, coherent communications (VCELY275)
- Interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and use interaction skills (VCELY307)
- Incorporate new vocabulary from a range of sources, including vocabulary encountered in research, into own texts (VCELA293)

Students at Levels 3 and 4 **Geography**:

- Types of natural vegetation and the significance of vegetation to the environment, the importance of environments to animals and people, and different views on how they can

be protected; the use and management of natural resources and waste, and different views on how to do this sustainably (VCGGK082)

Success Criteria / Learning outcomes:

Students will:

1. Discuss what they know about possums, such as their behaviour, diet and habitat.
2. Read a range of online and print information texts to research new information and consolidate their prior knowledge about possums.
3. Identify key information from their research to make a class chart about possums.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Observational notes about students' contributions to class and group discussions about what they know about possums to assess their ability to work in groups.
2. Students identify key information from print texts and write down key points from online texts about possums. Teachers will take a photo of each student's research, which will help identify any possible misconceptions.
3. A teacher will collate students' key information about possums to write a chart to be displayed in the classroom. A photo will be taken of the chart.

Procedure:

Time for each step	**Teacher activities:**	**Learner activities:**
10 minutes	**Engagement:** ● Introduce the idea that students will be building a possum habitat prototype, therefore we need to know information about possums to help us design it. ● Lead class discussion asking what students know about brush-tailed possums - such as behaviour, diet and habitat. Get students to discuss ideasin groups. Make notes on class chart about possums. ● Briefly mention issue of possum overpopulation in New Zealand. **(Assessment 1 - observational notes will be taken during this class discussion to assess students' ability to contribute to group tasks)**	● Students participate in class discussion about possums.
40 minutes	**Procedural steps:** ● Explain to students they will use online and print texts to research information about possums. Give students two photocopied texts for them to highlight key points and encourage the use of	● In small groups, students use online and print texts to research information about possums. They highlight and write key points.

10 minutes	online research on classroom iPads and reading books provided. ● Roam the classroom to monitor and support students as they work in groups. **(Assessment 1 - teachers will continue to write observational notes about student's ability to work in groups;** **Assessment 2 - teachers will take photos of each child's highlighted and written research at the end of the lesson)** **Conclusion:** ● Bring students back to the floor and ask them to identify key information about possums they learned in their research. Write this key information on a classroom chart. **(Assessment 3 - a teacher will take a photo of the classroom chart at the end of the lesson as evidence of students' collated key information about possums)**	● Students discuss and share their research about possums to contribute information to a classroom chart.

Teacher's resources:
Printed texts about possums from:
https://en.wikipedia.org/wiki/Common_brushtail_possum
http://www.abc.net.au/local/stories/2008/07/27/2306975.htm
https://www.australiazoo.com.au/our-animals/mammals/possums-and-gliders/common-brushtail-possum
https://www.ehp.qld.gov.au/wildlife/livingwith/brushtail_possums.html
https://www.backyardbuddies.org.au/backyard-buddies/brushtail-possum
https://australianmuseum.net.au/common-brushtail-possum
https://www.parks.tas.gov.au/?base=4871
https://www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/native-animal-facts/brush-tailed-possum
Information chart
Pen
Blue-Tac

Students' resources:
Grey lead pencil
Highlighters
Laptops
Writing book

Self-evaluation:
Overview of experience
Students immediately appeared engaged and had lots of questions when we introduced the idea of building a possum habitat prototype. This served as an effective hook to get students interested in researching and sharing information about possums.
Raising the controversial issue of possum overpopulation in New Zealand also address some students' misconceptions - for example, that the animal can only be found in Australia.
Overall, we believe we provided an engaging and relevant context for this reading lesson,

using credible print texts we sourced and online research to find information. Students know they will need to refer to this information when designing and building their possum habitat prototype.

Assessment and learning

Our observational notes were particularly timely given that students self-assessed their ability to work in groups during lesson five. We were able to cross-check our observations of students with their self-assessments.

Taking photos of students' notes and the information chart allowed us to identify how effectively they sourced information from different texts. From reading the notes on the information chart, we could also identify any student misconceptions about possums.

Limitations and recommendations

One major limitation we noticed from this lesson involved students using laptops to research information about possums. Several groups wasted time waiting for a laptop to login or load because they were more interested in online research rather than reading the print texts we provided. While we were able to instruct groups to read a print text together while waiting for a computer to load, if teaching this lesson again we would ensure all class laptops were logged in beforehand ready to use immediately.

The future

This lesson set the foundation for future lessons, where students will use their research to design and create a possum habitat prototype. The possum information chart they contributed to will serve as a valuable classroom resource during their design and technology project.

Supervising teacher's comments:

It was a good way to engage the students by explaining that they will be 'building with their hands'. It gave the research task a real purpose. The visual display of the 'what we already know' with a few subheadings was a good way to start the conversation.

It was great to see you roaming the classroom and connecting with the students to make sure they were on task.

The students felt valued by giving them the opportunity to share the information / facts they found.

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Cycles of life

Lesson No: 7

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 16/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will research and identify scientific language associated with plant life cycles.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for science, critical and creative thinking and personal and social capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Listen to and contribute to conversations and discussions to share information and ideas and negotiate in collaborative situations and use interaction skills, including active listening and clear, coherent communications (VCELY275)
- Interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and use interaction skills (VCELY307)
- Use comprehension strategies to build literal and inferred meaning and begin to evaluate texts by drawing on a growing knowledge of context, text structures and language features (VCELY257)
- Use comprehension strategies to build literal and inferred meaning to expand content knowledge, integrating and linking ideas and analysing and evaluating texts (VCELY288)
- Incorporate new vocabulary from a range of sources, including vocabulary encountered in research, into own texts (VCELA293)

Students at Levels 3 and 4 **Geography**:

- Types of natural vegetation and the significance of vegetation to the environment, the importance of environments to animals and people, and different views on how they can be protected; the use and management of natural resources and waste, and different views on how to do this sustainably (VCGGK082)

Success Criteria / Learning outcomes:

Students will:

1. Gain an understanding of plant life cycles through watching the video “Flowering” from David Attenborough’s *Secret Life of Plant*s.

2. Research and identify the scientific language of plants and plant life cycles through reading books/selected texts and create an information poster as a group.
3. Begin adding to the L and H columns of the TWLH chart.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. A teacher will write observational notes about students' emerging knowledge - for example, if they start to develop scientific explanations or language about plant life cycles - during class discussion after watching the video.
2. Teachers will take photos of student plant information posters.
3. A teacher will take a photo of the TWLH chart after each student adds at least one sticky note to the L and H columns.

Procedure:

Time for each step	**Teacher activities:**	**Learner activities:**
10 minutes	**Engagement:** ● Show students a labelled flower cross section and compare with the diagrams they labelled during lesson 3	● Students compare the labelled plant diagram with their original diagram.
40 minutes	**Procedural steps:** ● Show students selected portions of the video "Flowering" from David Attenborough's *Private Life of Plants*. https://latrobe.kanopy.com/video/private-life-plants-flowering ● Have class discussion after watching the video. **(Assessment 1 - observational notes will be taken during the class discussion to assess students' emerging knowledge)**	● Students watch the video and participate in a class discussion afterwards.
	Procedural steps: ● Provide books/selected texts for students to find scientific language about plant life cycles. ● Give each group a large piece of paper and ask each group to create a plant life cycle with information about plants in the centre. ● Roam the classroom to monitor and support students as they research. **(Assessment 2 - teachers take photos of student work, to show research gathered about plants)**	● Students use books/selected texts to find scientific language about plant life cycles. ● Students make an information poster about plants and their life cycles.
	● Stop class and discuss the task of creating a possum habitat a little more. This is only to spark interest and further	● Students listen to more details about the task of creating a possum habitat.

10 minutes	research about possums, not start the task. **Conclusion:** ● Get students to write one sticky note each for the L and H columns of the TWLH chart. **(Assessment 3 - a photo will be taken of the TWLH chart at the end of the lesson)**	● Each student writes on a sticky note for the L and H columns of the TWLH chart.

Teacher's resources:
Interactive whiteboard
Laptop
Books and other selected texts about plant life cycles
TWLH chart
Sticky notes

Students' resources:
Grey lead pencil
Writing book

Self-evaluation:

Overview of experience
During this lesson some students were slow to engage with the task once they moved off into groups. Some struggled to work cooperatively with fellow group members. However, once engaged, all students began working well within their groups and all groups produced some excellent work.

Assessment and learning
Initially it was difficult to get some students to focus on extracting facts from the research texts provided. However, with support and scaffolding, all students were able to find plant facts to share and were able to contribute to the group task. This task was collaborative and presented an opportunity to assess how well students were working in groups.

Limitations and recommendations
When students were comparing their original plant cross section from lesson 3 with a labelled diagram, the images were slightly different. This allowed us to see who was able to look at the diagram and interpret the information and who was finding this task difficult. It also showed whether students had an understanding of which parts were which, if they mislabelled parts even with the labelled diagram in front of them.

The future
This task allowed us to thoroughly assess each students' group work skills, which will help us to support them and scaffold future tasks. The posters groups created will also be displayed around the room and can be used to support future tasks, because information will be readily available.

Supervising teacher's comments:

This has been an excellent session to follow up on misconceptions the students may have had regarding the parts of a flower. It was interesting to hear the students share the differences and changes they made. While watching the short film, the students got a lot out of pausing and referring to their handout to figure out exactly what is happening. Many students made connections ~~through~~ promoted by your inquiry-based questioning. The students collaborated well in small groups and were able to research and share facts well. The posters looked great!

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Home for the possums

Lesson No: 8

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 17/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will explore the controversial plan to make New Zealand predator free by 2050 and form an opinion about the topic.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for Science, Critical and Creative Thinking and Personal and Social Capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Understand the conventions for writing words and sentences using joined letters that are clearly formed and consistent in size (VCELY268)
- Handwrite using clearly-formed joined letters, and develop increased fluency and automaticity (VCELY301)
- Plan, draft and publish imaginative, informative and persuasive texts demonstrating increasing control over text structures and language features and selecting print and multimodal elements appropriate to the audience and purpose (VCELY266)
- Plan, draft and publish imaginative, informative and persuasive texts containing key information and supporting details for a widening range of audiences, demonstrating increasing control over text structures and language features (VCELY299)

Students at Levels 3 and 4 **Geography**:

- Types of natural vegetation and the significance of vegetation to the environment, the importance of environments to animals and people, and different views on how they can be protected; the use and management of natural resources and waste, and different views on how to do this sustainably (VCGGK082)
- Location of Australia's neighbouring countries and the diverse characteristics of their places (VCGGK078)
- Similarities and differences in individuals' and groups' feelings and perceptions about places, and how they influence views about the protection of these places (VCGGK083)

Success Criteria / Learning outcomes:

Students will:

1. share their opinion about a controversial topic with a partner
2. write a persuasive text either for or against New Zealand's Predator Free by 2050 program
3. add to the L and H columns of the TWLH chart.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Observational notes about student ability to give a reason for their opinion.
2. Photos of each student's persuasive text arguing either for or against New Zealand's Predator Free 2050 plan.
3. Photo of the TWLH chart after the L and H columns have been added to.

Procedure:

Time for each step	**Teacher activities:**	**Learner activities:**
10 minutes	**Engagement:** ● Conduct a modelled viewing of: https://www.youtube.com/watch?v=vUhSVViFSEc ● https://www.youtube.com/watch?v=D-4r9FjsUvA (skip 1:35-1.48) ● Ask students to discuss with a partner, the issue of possums in New Zealand ● Ask students whether they think it's a good idea to control pests, such as possums in New Zealand - think-pair-share **(Assessment 1 - observational notes about students' ability to give a reason for their opinion)**	● Students watch videos ● Students participate in class discussion
40 minutes	**Procedural steps:** ● Ask students what the most important aspects of a persuasive text are. ● Ask students to write a persuasive text arguing either for or against New Zealand's plan to eradicate all possums from the country by 2050. **(Assessment 2 - persuasive writing work samples from all students)**	● Students work independently to write a persuasive writing piece
10 minutes	**Conclusion:** ● Ask students to share what they think now that they have had more time to	● Students participate in class discussion

	consider their opinion about New Zealand's Predator Free by 2050 program. ● Ask students to write at least one sticky note each for the L and H columns of the TWLH chart. **(Assessment 3 - photo of the TWLH chart at the end of the lesson)**	● Students add to the TWLH chart

Teacher's resources:
Videos (online) about Predator Free New Zealand by 2050
Sticky notes
TWLH chart

Students' resources:
Grey lead pencil
Writing books

Self-evaluation:

Overview of experience

The two video clips we showed students at the start of the lesson engaged them with the controversial issue of possum overpopulation in New Zealand. The video clips gave students sufficient information to discuss the issue with a classmate and choose a stance to argue in a persuasive writing piece. We enjoyed listening to students justify their opinion on the issue during a whole class reflection. The issue clearly divided students' opinion and they articulated these using a range of persuasive devices.

Assessment and learning

Taking a photo of each student's writing provided evidence of how they presented their opinion on the issue in a persuasive piece. Using these photos, we could assess each student's writing according to the persuasive text structure of an introduction, three arguments and a conclusion. We then took a photo of the TWLH chart after students had each posted a sticky note in the LH column as evidence of what they learned about the issue.

Limitations and recommendations

One thing we had to be mindful of was the sensitivities around discussing the killing of possums. We ensured the video clips we showed to engage the students presented the issue in an appropriate way. For example, we found an entertaining and informative video clip of wildlife explorer Bear Grylls hunting and killing a possum in a New Zealand forest, but decided it was too confronting to show students. We felt students formed their opinions on the issue based solely on whether they thought it was okay to kill possums. If teaching this lesson again, we recommend extending students by encouraging them to think more deeply about why it is sometimes necessary to control animal pests.

The future

Exposing students to this controversial issue encouraged them to think about the concept of predators and how they interact in the environment. Hopefully this will provide students with relevant knowledge they can consider when designing and creating their possum habitats.

Supervising teacher's comments:

You begun the lesson well by briefly touching on their prior learning initially, then moving straight into the educational short films. The videos were informational but also age appropriate. The students were able to discuss plenty of valid points and arguments. The students were quite easily able to formulate high quality arguments for their persuasive pieces with the info from the videos and discussion. offering the students the chance to share gave the task a good purpose.

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Can we build it?

Lesson No: 9

Subject: Design and technologies, science

School: [redacted]

Duration: 60 minutes

Date: 17/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will explore the controversial plan to make New Zealand predator free by 2050 and form an opinion about the topic.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for Science, Design and Technology, Critical and Creative Thinking and Personal and Social Capability curriculum indicators.

Students at Levels 3 and 4 **Geography**:

- Types of natural vegetation and the significance of vegetation to the environment, the importance of environments to animals and people, and different views on how they can be protected; the use and management of natural resources and waste, and different views on how to do this sustainably (VCGGK082)

Success Criteria / Learning outcomes:

Students will:

1. establish the client and context for their design project
2. identify constraints and considerations for their possum habitat
3. add to the TWLH chart

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Worksheet showing client and context for the design project
2. List of constraints and considerations for the possum habitat
3. Photo of updated TWLH chart

Procedure:		
Time for each step	**Teacher activities:**	**Learner activities:**
10 mins	**Engagement:** **Introduction** ● Introduce students to the design cycle. ● Explain why the design cycle is so important and how it helps us to make sure we come up with the best solution. ● Ask students how we could use the design cycle. ● Introduce "The problem" ○ Possum living in the classroom roof ○ Causing damage to the building ○ Needs to be relocated	● Students listen to introduction about the design cycle and participate in class discussion.
40 mins	**Procedural steps:** ● Ask students to work in their teams to establish client and context for the design task (garden, tree and possums) ● Ask students to define and investigate constraints and considerations. Model one of each (Constraint - size of possums, consideration - colour of possum box) ● Ask students to share their constraints and considerations with the class. Students can add any they didn't have to their list.	● Students work in small groups to establish client, context, constraints and considerations for their design task. ● Students share with the class and write down ideas from other students
10 mins	**Conclusion:** ● Ask students to write at least one sticky note each for the L and H columns of the TWLH chart. **(Assessment 3 - photo of the TWLH chart at the end of the lesson)**	● Students add at least one sticky note to the TWLH chart
Teacher's resources: Worksheets TWLH chart Sticky notes **Students' resources:** Grey lead pencil		

Self-evaluation:

Overview of experience

Overall, the lesson was successful, because all students were able to identify the problem, context and some constraints and considerations. It was a challenging time of day to run the lesson in the last hour, because some students found it difficult to focus. Splitting students into groups to work on the task assisted with this.

Assessment and learning

The students were able to identify all the elements needed in the first two phases of the design cycle and the worksheets provided allowed them to succeed and demonstrate their understanding, without giving them the answers.

Limitations and recommendations

Most students were unfamiliar with much of the language used in this lesson, such as "constraints". This meant additional time needed to be spent explicitly teaching these terms. Our recommendation if we were to run this lesson again would be to make the lesson more physically engaging. Perhaps students could write their constraints and considerations on small pieces of paper and add them to a whole class chart.

The future

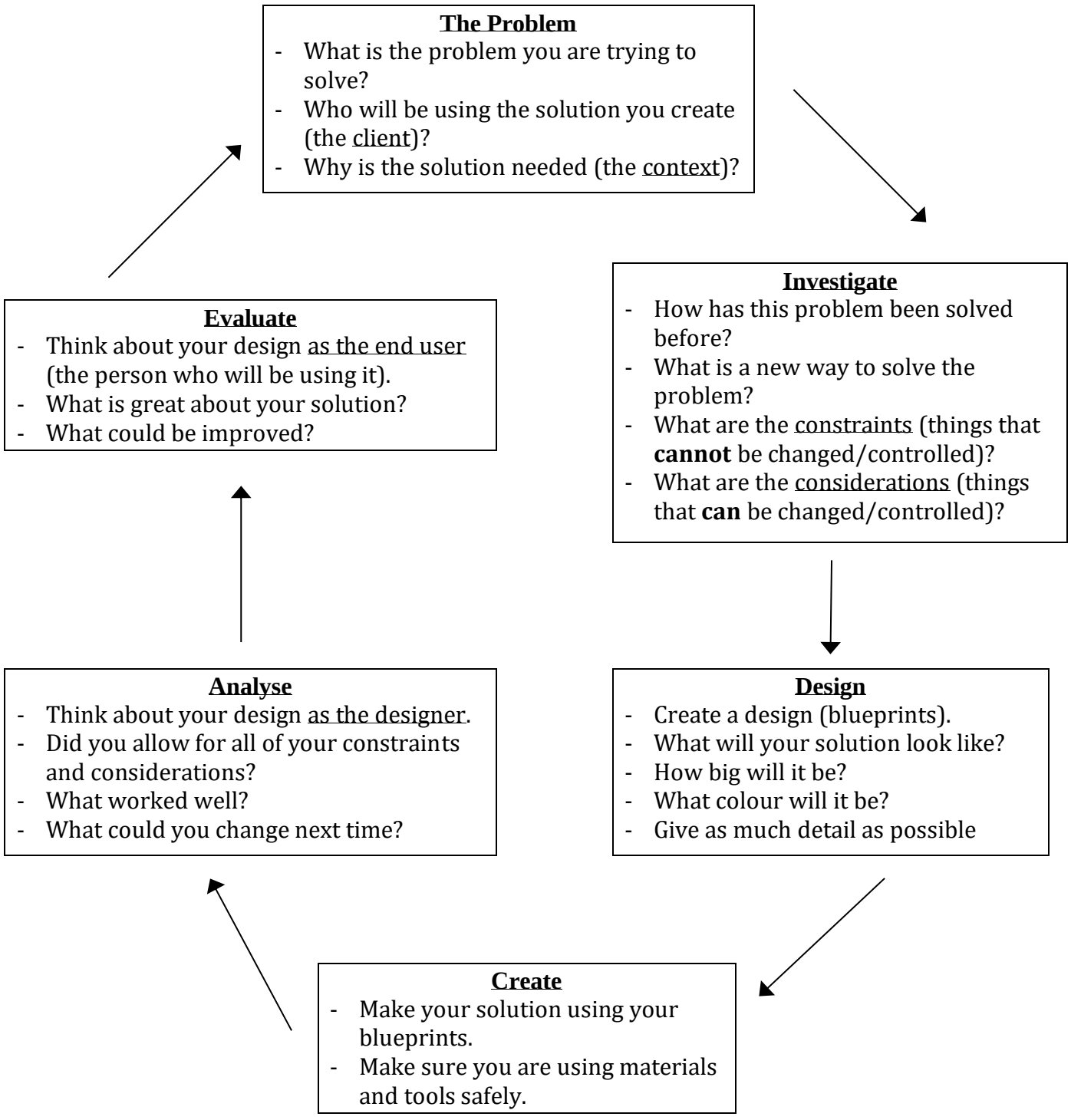
Following lessons will give students the opportunity to understand how all of the design phases work together to support the creation of a designed solution. Emphasis will be placed upon how this is relevant to their daily life, so that students can understand how this is applicable to them.

Supervising teacher's comments:

Regarding behaviour, the afternoon inquiry session can be tough. Even with a few interruptions, you were able to gain control of the students and keep them engaged throughout. Constant reminders of the expectations is working well for you both. It was great to set the language expectation high during this session. The introduction of new vocabulary was a huge success. Timing was difficult in this session due to interruptions, but you still managed it well.

Name: _____

The Design Cycle



The Problem

What is the Problem that needs to be solved?: _____

_____

_____

_____

_____

_____

Who is the Client (who are we making the solution for)?: _____

_____

What is the Context (why do we need this solution)?: _____

_____

_____

_____

Investigate

What are the constraints? What are things we **cannot** control or change?	**What are the considerations?** What are things we **can** control or change?

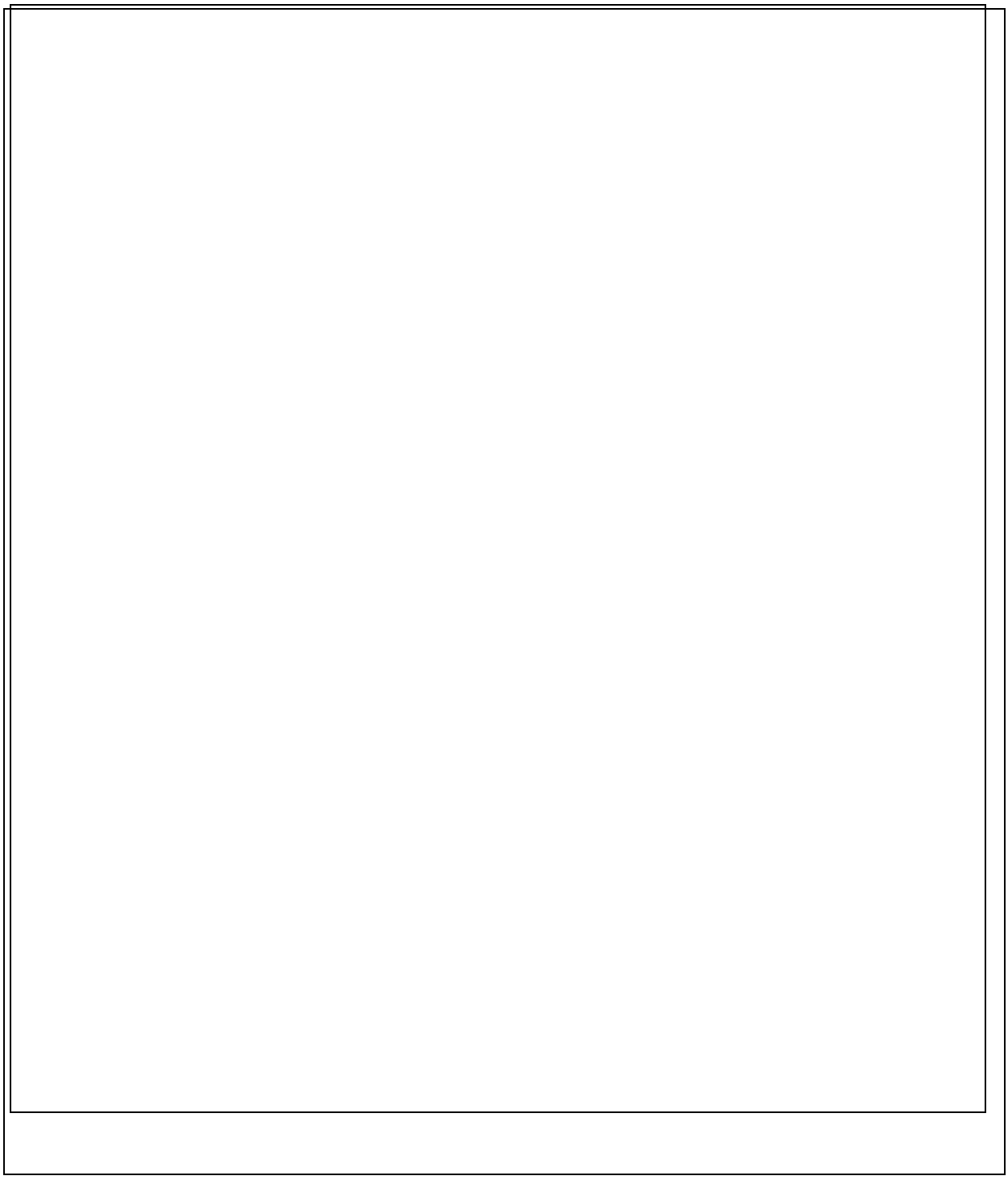
Design

Create a design (blueprint) for your possum habitat.

Ask yourself:

- What will my solution look like?
- What are the functional factors (constraints and considerations) that affect my design
- How big will it be?
- What colour will it be?

You will be using this blueprint to help you build your possum habitat, so be sure to include as much detail as possible.



Notes about your design:

_____

_____

_____

Analyse

Think about your possum habitat as the designer.

- Did you allow for all of your constraints and considerations (functional factors)?
- What worked well?
- What could you change next time?

Evaluate

Think about your design as the end user (the possum).

- What is great about your solution?
- What could be improved?

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: To the drawing board

Lesson No: 10

Subject: Design and Technologies/Science

School: [redacted]

Duration: 60 minutes

Date: 18/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will design a possum habitat, using the information they have learned about possums during the unit to guide their designs.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for Science, Design and Technology, Critical and Creative Thinking and Personal and Social Capability curriculum indicators.

Students at Levels 3 and 4 **Mathematics**:

- Measure, order and compare objects using familiar metric units of length, area, mass and capacity (VCMMG140)
- Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (VCMMG165)

Success Criteria / Learning outcomes:
Students will:

1. create design blueprints for a possum habitat.
2. annotate their blueprints with measurements, notes and important details.
3. make suggestions about the kinds of vegetation we need in the garden under the tree for the possum home

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Photos of student blueprints
2. Photos of student annotations

3. Observational notes from class discussion		
Procedure:		
Time for each step	**Teacher activities:**	**Learner activities:**
10 mins	**Engagement:** ● Explain to students that today we will be designing their possum habitats and making a blueprint. ● Remind them of the design cycle and encourage them to use the functional factors (constraints and considerations) we brainstormed yesterday to guide their design. ● Set expectations that we need to see a diagram with measurements and annotations about important details. ● Draw their attention to the chart they created about possums. ● They will be using this blueprint to guide their building process tomorrow, so it needs to be as detailed as possible. ● Even though students will be designing their own habitat each, ask them to work in groups, so they can support each other.	● Students listen to instructions and contribute to discussion.
35 mins	**Procedural steps:** ● Roam the room observing and supporting students in the design process. Ask probing questions if you can see something is missing from the blueprints. **(Assessment 1 and 2 - photos of each student's blueprints)**	● Students create blueprints for their possum habitats.
15 mins	**Conclusion:** ● Create blueprints for layout of garden. Decide about plants to use in the garden. **(Assessment 3 - Observational notes from class discussion about the garden)**	● Students contribute to class discussion about the design of the class garden.

Teacher's resources: Blueprint handouts Design cycle handouts Design cycle chart **Students' resources:** Grey lead pencil Ruler Rubber		
Self-evaluation: <u>Overview of experience</u> Students were able to use the constraints and considerations they brainstormed in the previous lesson to each design a possum habitat blueprint. Some students rushed the task, but with prompting they were able to add the necessary details to produce a good blueprint. We enjoyed watching students use rulers to better visualise how big they wanted their possum habitat to be. There was a high level of engagement during this design phase, with students excited to create a possum habitat blueprint ahead of building it next lesson. <u>Assessment and learning</u> Taking photos of the blueprints allowed us to assess the extent to which each student had used the constraints and considerations from the investigate phase to design their possum habitat. Some students did not have the necessary details on their blueprints to be ready to build their possum habitats. These students were asked to modify their blueprints to add additional detail. <u>Limitations and recommendations</u> The main limitation was students' understanding about length, which meant that some students designed a blueprint to build a very large possum habitat. For example, one student wanted to build a habitat two metres tall. Even after being encouraged to measure how big such a habitat would be to visualise it, the student wanted to stick with that blueprint design. A recommendation could have been to take students outside before starting their designs and get them to look at potential locations for their possum habitats (such as a tree) to help create a realistic blueprint. <u>The future</u> This lesson served as a crucial phase of the design cycle. Students will use the blueprints they designed in this session to build possum habitats in the next lesson. We look forward to seeing students turn their blueprints into reality!		

Supervising teacher's comments:

You were able to set clear expectations for this very open task. showing the students images of student-designed blueprints helped them to identify the elements required, such as labelling, measurements, etc. It was interesting to note which groups took this mega seriously, compared to others who weren't as sensible. I noticed the latter getting more and more interested and intrigued as the session went on and they bounced ideas of each other. You mid-session check in was very effective and influenced many of the students to reflect and evaluate on their work.

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Ready, set, build!

Lesson No: 11

Subject: Design and Technologies, science

School: [redacted]

Duration: 60 minutes

Date: 19/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will create a possum home prototype, using their design blueprints and their knowledge about the possum and how it interacts with the environment.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for Science, Design and Technology, Critical and Creative Thinking and Personal and Social Capability curriculum indicators.

Success Criteria / Learning outcomes:

Students will:

1. complete a final review of their blueprints to ensure they have adequate detail and will allow them to create their possum home.
2. construct their possum home prototype.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Photos will be taken of each students' blueprints, to show their ability to create a designed solution.
2. Photos will be taken of each child's possum home, to show their progress during the "create" phase of the design cycle.

Procedure:

Time for each step	**Teacher activities:**	**Learner activities:**
10 mins	**Engagement:** ● Ask students to review their design blueprints and ensure	● Students review their blueprints and seek feedback from a peer and teacher.

	they have included the following: ○ Annotations ○ Measurements ○ Special features ○ Materials ● Give students time to do a self-review and then ask them to partner up and peer-review another students' blueprints for these elements. **(Assessment 1 - photos of each student's blueprints)** ● Explain the expectations for correct and safe use of materials ○ Be sensible about tape use, not wasteful. ○ Be safe when using scissors, ask a teacher if you are having trouble cutting something out. ○ If you are making a large home, perhaps make a scaled model - you will need to be able to transport it home. ● Remind students that they need to use their blueprints to inform their construction. ● Once students have had their designs reviewed and then checked by a teacher they can begin constructing their possum home.	
40 mins	**Procedural steps:** ● Ask students to begin construction of their possum homes. ● Roam the room and assist where necessary. ● Ensure students are using materials safely	● Students work on constructing their possum homes.
10 mins	**Conclusion:** ● Ask students to pack up.	● Students pack up the classroom. ● Students participate in class discussion.

	● Ask students to reflect on how well they used their blueprints to inform their creation phase. ● Ask students what they learned. **(Assessment 2 - photo of each student's possum home prototype)**	

Teacher's resources:
Cardboard boxes
Masking tape
Student blueprints

Students' resources:
Scissors
Pencils/textas
Extra materials

Self-evaluation:

Overview of experience

This lesson was a successful experience that engaged most students and encouraged them to think more deeply about how living things (such as possums) interact with other living things and the environment around them. Students were responsible with tools and equipment and most students demonstrated resilience when they encountered challenges.

Assessment and learning

This lesson allowed students to explore the information they have been learning in a more personalised way and gave us the opportunity to make more thorough observations of their understanding of the design cycle and their knowledge about possums and how they interact with their environment. We also had the opportunity to assess their critical and creative thinking skills, their emotional resilience and their interaction with their classmates..

Limitations and recommendations

The main limitation of this lesson was time. Many students would have liked additional time to work on their habitats and it would have been beneficial to have more time to share with the rest of the class what the students produced.

The future

When using a task such as this in the future, there would ideally be an opportunity to allocate more time, both for the creation stage and the group sharing afterwards.

Supervising teacher's comments:

Excellent class management throughout the whole session. Open tasks like this can lead to 'controlled' chaos, however our room felt calm and chilled, even throughout the building and creating process. It was interesting to note the difference in student ability to deal with setbacks in a positive way. I was super impressed with not only the final product, but also the students' ability to explain <u>why</u> the made changes and alterations to their prototype.

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Green thumbs

Lesson No: 12

Subject: Design and technologies, science

School: [redacted]

Duration: 60 minutes

Date: 23/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will work in groups to design a garden that takes into account environmental factors, such as sun and shade and will discuss how living things interact with each other and the environment.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for Science, Design and Technology, Critical and Creative Thinking and Personal and Social Capability curriculum indicators.

Students at Levels 3 and 4 **Geography**:

- Types of natural vegetation and the significance of vegetation to the environment, the importance of environments to animals and people, and different views on how they can be protected; the use and management of natural resources and waste, and different views on how to do this sustainably (VCGGK082)

Success Criteria / Learning outcomes:

Students will:

1. work as a class to agree on a new design for the garden outside the classroom.
2. work in groups to plant new plants in the garden.
3. add to the LH column of the TWLH chart.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Observational notes about students' ability to explain why they believe their plant should occupy a certain position.
2. Observational notes about students' ability to work as a team.
3. Photo of the updated TWLH chart.

Procedure:		
Time for each step	**Teacher activities:**	**Learner activities:**
10 mins	**Engagement:** ● Explain to students that we are going to be revitalising the garden near the classroom. ● Discuss safety rules (Use equipment safely, be careful when picking up items that may have bugs underneath, hats on, etc). ● Ask students to get into the groups they have been working in throughout the unit.	● Students listen to instructions. ● Students get into their groups and go outside.
40 mins	**Procedural steps:** ● Give each group 2 plants and ask them to look at the tag and consider what position it might need to be planted in based on its needs (sun, size, etc). ● Ask groups to split into pairs, so there is one plant between 2 students. ● Ask pairs to place their plants where they think they should go. ● Facilitate a class discussion about appropriate locations for each plant to be planted. **(Assessment 1 - Observational notes about students' ability to explain why they believe their plant should occupy a certain position)** ● Once the class has agreed on a layout for the garden, take students to the garden shed to collect equipment. ● Ask groups to plant their plants and water them. ● For any students that finish early, ask them to make triangles to go along the string barrier to ask people to stay out of the garden and explain what they have done today. **(Assessment 2 - Observational notes about students' ability to work as a team)** ● Ask students to clean up all tools and head back to the classroom.	● Students discuss the needs of their plant and where it should be planted. ● Students plant their plants. ● Students clean up.

10 mins	**Conclusion:** ● Ask students to add to the LH column of the TWLH chart. **(Assessment 3 - Photo of the updated TWLH chart)**	● Students work on either their possum habitats or on answering the class' wonderings. ● Students add to the LH column of the TWLH chart.

Teacher's resources:
Plants
Shovels
Garden forks
Hand shovels
Water cans
Soil
Buckets
Metre rulers

Students' resources:
Hats
Grey lead pencil
Possum habitat

Self-evaluation:

Overview of experience

We think this lesson was one of the highlights of our MSTIE unit. Students were excited as soon as we told them they would be planting a garden outside their classroom. We capitalised on the school having a kitchen garden program, meaning the necessary garden equipment was easily accessible. Seeing students work together to reinvigorate the neglected garden with some native plants was a proud moment for us as teachers. This lesson demonstrated how learning can benefit the entire school community and we hope students take pride in what they achieved in improving their natural environment.

Assessment and learning

Reflecting on our observational notes, it was interesting to analyse how well students collaborated with other groups, as well as within their own group. For example, some students explained where their group had decided to place their plants in the garden, but had clearly disregarded the feasibility of placing a tree close to another tree. Once this issue was raised, we were able to take further notes assessing students' ability to consider factors influencing where to place their plants.

Giving each group of four two plants allowed us to split students into pairs for the planting part of this lesson. This gave us greater scope to assess students on their collaboration skills and allowed us to share out the roles of mixing soil, digging a hole, planting and watering.

Limitations and recommendations

One thing we noticed during this lesson was some students became disengaged as soon as they completed their planting. Getting those students involved in making triangles for the string barrier proved a worthwhile task to keep them engaged during the session and linked well to the learning students had been doing about 2D shapes in Mathematics. A recommendation if teaching this lesson again would be to ask early finishers to start designing a suitable protection barrier for the garden, before creating it. This could occur across multiple lessons, involving the whole class, to incorporate another design and technology element to our unit.

The future

We hope students take pride in the new garden they planted and relish the responsibility of looking after it in the future. Through deliberately planting a garden of natives, we want students to demonstrate their learning about how these plants and other living things such as possums rely on each other to survive in the environment.

Supervising teacher's comments:

Overall, this was an engaging and satisfying lesson for the students. You had them eager from the very start by including a short 'hook' involving our principal. The lesson did change as the session went on, as ~~the~~ you didn't get a chance to cover all of the SC, but we can get to this tomorrow. It's hard to fit everything in when there are so many contributing factors (ie, when planting a garden). The students' discussions regarding the location of each plant was interesting, and it was great to see you integrating measurement into ~~each~~ this lesson.

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Finished products

Lesson No: 13

Subject: Design and technologies, science

School: [redacted]

Duration: 60 minutes

Date: 23/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students demonstrate their ability to evaluate and analyse a designed artefact, drawing upon the knowledge they have gained throughout the unit.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for Science, Design and Technology, Critical and Creative Thinking and Personal and Social Capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Listen to and contribute to conversations and discussions to share information and ideas and negotiate in collaborative situations and use interaction skills, including active listening and clear, coherent communications (VCELY275)
- Interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and use interaction skills (VCELY307)

Success Criteria / Learning outcomes:

Students will:

1. Demonstrate their ability to analyse their possum habitat from the designer's point of view.
2. Demonstrate their ability to evaluate their possum habitat from the end user's point of view.
3. Share their new learning about possums and their interactions with their environment.

Assessment: (Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Photos of students' possum habitat analysis.
2. Photos of students' possum habitat evaluation.
3. Observational notes about students' knowledge about possums.

Procedure:

Time for each step	**Teacher activities:**	**Learner activities:**
15 minutes	**Engagement:** ● Give students 15 minutes to finish off their possum habitats.	● Students finalise their possum habitats
30 minutes	**Procedural steps:** ● Ask students to analyse their possum habitats as the designer and discuss changes that could be made in the future. ● Draw students' attention to key questions to consider and encourage them to think deeply about their artefacts. **(Assessment 1 - Photo of students' self-analysis of possum habitats)** ● Ask students to evaluate their possum habitats as the end user (possum). ● Draw students' attention to key questions to consider and encourage them to think deeply about their artefacts. **(Assessment 2 - Photo of students' self-evaluation of possum habitats)**	● Students analyse and evaluate their possum habitats
15 minutes	**Conclusion:** ● Ask students to share with the class about what they learned during the design process. **(Assessment 3 - Observational notes about students' knowledge about possums and how they interact with their environment)**	● Students share their possum habitats with the class.

Teacher's resources:
Design cycle handouts
Possum habitats
Tape
Cardboard

Students' resources:
Grey lead pencil

Self-evaluation:
Overview of experience
Overall most students were able to analyse and evaluate their possum habitats to some degree. Some students disengaged early due to the need to write their responses. We felt this was one of our slightly less engaging lessons, but was also a necessary part of the design cycle.

Assessment and learning
Each student completed their own worksheet, which gave us evidence of their current knowledge

and their ability to analyse and evaluate. The challenging part about using this type of assessment was that there are some students who could have explained their ideas quite well verbally, but do not have the literacy skills to express their ideas well on paper.

Limitations and recommendations

The main limitation of this task was the literacy level of some of the students at a lower learning level. When completing this part of the design cycle in future it would be ideal to find a way to assess students with this limitation differently, perhaps through an interview or discussion.

The future

By the end of this lesson students were able to see the value of the design cycle and how it relates to their daily lives. We hope that they will be able to use their new understanding and apply it to future design and technology tasks, as well as their daily lives.

Supervising teacher's comments:

This was a good reflective lesson ~~and~~ with a solid emphasis on the analyse and evaluate stages of the design process. As this process is new to the students, they found it difficult to be critical on their own work. I wonder if this could have been different if we had more time to share our possum homes in the previous session. It was smart to give the students a three minute brain break after a long writing and research task, it had a positive impact on their engagement and output.

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: In today's news...

Lesson No: 14

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 24/10/18 and 25/10/18
Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will create a plan for their final presentations, which will showcase their key learnings throughout the unit.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for Science, Design and Technology, Critical and Creative Thinking and Personal and Social Capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Plan and deliver short presentations, providing some key details in logical sequence, using appropriate tone, pace, pitch and volume (VCELY276)
- Plan, rehearse and deliver presentations incorporating learned content and taking into account the particular audiences and purposes such as informative, persuasive and imaginative, including multimodal elements (VCELY308)

Success Criteria / Learning outcomes:

Students will:

1. Demonstrate their ability to work on a group task to create a shared presentation.
2. Begin planning and rehearsing a presentation to showcase their learning.
3. Create a plan for the next stage of their presentation design and rehearsals.

Assessment: **(**Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Observational notes about students' ability to work in groups.
2. Photos of student presentation plans.
3. Photos of student plans for the following lesson.

Procedure:		
Time for each step	**Teacher activities:**	**Learner activities:**

10 mins	**Engagement:**
	● Explain to students that this week they will have the opportunity to showcase what they have learned throughout the unit.
	● Students will be working in their inquiry groups to create a presentation of their key learnings.
	● Groups will have a choice of presentation style, including:
	  ● Radio/TV interview
	  ● Radio/TV news broadcast
	  ● Storyboard
	  ● Own choice with approval
	● If groups decide on their own format, they must first seek approval from a teacher.
	● Explain that each group will receive a sheet with guidelines of what needs to be included, so that they can be successful in completing the task.
	● Ask students what the expectation is of all group members and facilitate discussion.
	● Explain that all group members will need to contribute to both the planning and the presentation.
		● Students listen to teacher instructions and participate in class discussions

40 mins	**Procedural steps:** ● Roam the room and support groups to get started with the task and to decide on a presentation format. ● Ensure all students are on task and make observational notes about students' ability to work in groups and collaborate on a shared presentation. **(Assessment 1 - Observational notes about students' ability to work in groups.)** **(Assessment 2 - Photos of student presentation plans.)**	● Students work in small groups to design presentations
10 mins	**Conclusion:** ● Ask students to work with their group to create a plan for the following lesson, to ensure they are	● Students work together to make an action plan for the following lesson.

	using their time effectively when we come back to the task. ● Ask some students to share some points with the class to encourage other groups to create a helpful plan. **(Assessment 3 - Photos of action plans for the following lesson.)**	● Students participate in class discussion

Teacher's resources:
Group checklists

Students' resources:
Grey lead pencil

Self-evaluation:

Overview of experience

After this lesson, we are looking forward to seeing students fulfill their presentation plans. Roaming around the groups, we were impressed with the different creative presentation ideas. We had to support two groups more heavily because they were struggling to script an effective presentation, but otherwise there was some amazing collaboration and ideas being discussed.

Assessment and learning

Our observational notes about students' ability to work in groups were particularly interesting because we have noticed significant improvement throughout the unit. Minor group conflicts were settled more easily and presentation roles were shared equally.
This assessment tied in well with our photos of each group's presentation and action plan and allowed us to assess student collaboration.

Limitations and recommendations

Presenting in front of the whole class can be daunting and some students were immediately anxious when presented with this task. Our biggest limitation in this lesson was encouraging the few unwilling students to contribute with the rest of their group. If teaching this lesson again, we would emphasise the task was more about demonstrating their learning in a fun way, rather than focusing on the assessment criteria for their presentation.

The future

With the action plans groups have produced, we are looking forward to hearing about their learning in the final lesson presentations. We think giving groups the flexibility to choose their presentation format has made for an open-ended task that caters for all student abilities and confidence levels.

Supervising teacher's comments:

The preparation and thought you have put into this session has really shone through. You have provided a solid, scaffolded plan to help encourage success across the areas of the Vic Curric. Providing fun and interesting ways to present their knowledge was a great way to engage the students. There were so many great ideas flying around!

Final Presentation Plan

Group member names:

_____

_____

Type of presentation:

- ❑ Storyboard with presentation
- ❑ TV or Radio interview
- ❑ TV or Radio news broadcast
- ❑ Own choice with teacher approval: _____

What your presentation needs to include (show us that you know/can do these things):

- ❑ Examples of ways we can group living things
- ❑ The difference between living and non-living things
- ❑ Different living things have different life cycles
- ❑ Living things need each other and the environment around them to survive
- ❑ A detailed plan of what your presentation will include and who will present which parts
- ❑ Rehearse and deliver a presentation about things you have learned
- ❑ Demonstrate how you can work well with other students on a group task

_____

_____

_____

_____

_____

_____

_____

_____

SCHOOL OF EDUCATION
LESSON PLAN TEMPLATE

Name: Ashleigh Williamson and Stephanie McKenzie

Topic: Bringing it all together

Lesson No: 15

Subject: Science

School: [redacted]

Duration: 60 minutes

Date: 25/10/18

Year level: 3/4

Learning Purpose/Learning Intention/Rationale:

During this unit, students will learn about animal and plant life cycles and the ways these living things interact in the environment. In this lesson, students will showcase their learning by making a group presentation to the class.

Victorian Curriculum- F-10 or VCE focus (if VCE applicable)

Please refer to unit plan for Science, Design and Technology, Critical and Creative Thinking and Personal and Social Capability curriculum indicators.

Students at Levels 3 and 4 **English**:

- Plan and deliver short presentations, providing some key details in logical sequence, using appropriate tone, pace, pitch and volume (VCELY276)
- Plan, rehearse and deliver presentations incorporating learned content and taking into account the particular audiences and purposes such as informative, persuasive and imaginative, including multimodal elements (VCELY308)

Success Criteria / Learning outcomes:

Students will:

1. demonstrate their ability to plan, rehearse and deliver an informative group presentation.
2. showcase their learning from the unit and demonstrate their new understandings.
3. listen attentively to other groups while they present.

Assessment: **(**Assessment should be numbered or coded so that they can be identified in the procedure of the lesson)

1. Class rubric showing ability to deliver a presentation.
2. Class rubric showing student understanding.
3. Observational notes about students' listening skills.

Procedure:		
Time for each step	**Teacher activities:**	**Learner activities:**
10 mins 45 mins 5 mins	**Engagement:** ● Tell students that we will now be watching each group's presentation ● Ask students what they feel they should be doing when their group is not presenting (active listening, not working on their presentations) ● Show students the order their groups will present in. ● Ask first group to set up and be ready to present. **Procedural steps:** ● Each group presents and teachers make assessment using the class rubric and observational notes **(Assessment 1, 2 and 3 - Marking rubric and observational notes.)** **Conclusion:** ● Congratulate groups on their effort and commitment to their presentations given the short time they had to prepare.	● Students listen to instructions and contribute to class discussion. ● Each group presents/watches other groups present.
Teacher's resources: Whiteboard Marking rubric Pen **Students' resources:** Performance props		
Self-evaluation: <u>Overview of experience</u> Overall we were very impressed by the effort most groups put into their presentations. Each group had made a plan and were able to demonstrate some of their learnings from the unit. Students enjoyed watching each other's presentations. <u>Assessment and learning</u> This task gave us a good opportunity to make some final summative assessments of each student's understanding of the science concepts explored throughout the unit. Students were given a rubric at the outset of the task, so that they were well scaffolded and were given every opportunity to succeed and demonstrate their learning.		

Limitations and recommendations

The main limitations for this lesson were time and student attendance. We were able to split the presentations over two lessons, which helped with the time limitation. However, for the students who were away we were unable to observe their part of the presentation. Fortunately all groups produced a presentation plan, so we were still able to assess student outcomes in this way and through the observations we made during the planning lessons.

The other limitation was the maturity of some students. There were a small number of students who became very heightened and silly when they were given the opportunity to perform in front of the class. A recommendation for the future would be to be more explicit about the expectations around behaviour when presenting.

The future

We hope that students in this class had an enjoyable time and gained many new understandings about biological sciences and scientific investigations. We both feel that this has been one of our most valuable placements to date and that we have gained a significant amount of teaching experience. Throughout the MSTIE process we have gained confidence in teaching an integrated science unit.

Supervising teacher's comments:

This was great lesson to bring it all together! The students shared their knowledge of the Vic Curric learnings through a fun and engageng presentation. It was perfect to set such tight timings to ensure students were ready to present on time. It was interesting to note the different levels of callaboration happening between the different groups.

Evidence Of Assessment

Throughout our MSTIE unit we embedded continual assessment that was directly linked with the Victorian Curriculum and which included diagnostic, formative and summative assessments. Below is a short summary of some of the assessments we used to gauge student learning, followed by a matrix of whether students performed below, at or above for their year level. Finally, we have included student work samples for each assessment task.

All handouts used throughout the unit are included at the end of each lesson plan.

Summary of key assessments

Assessment 1: Students classified a bag of items into living and non-living things (diagnostic).

Assessment 2: After looking at a bisected flower, students labelled its parts and their functions on a diagram (labelling the function was an optional extension for early finishers). This activity was repeated during the *explain* phase after students increased their knowledge of flowers through watching a video clip (diagnostic/summative).

Assessment 3: Students used their emerging knowledge to write an information text about frogs, including sub-sections such as their diet, habitat, life cycle and other interesting facts (summative).

Assessment 4: After learning about the controversial issue of possum overpopulation in New Zealand, students wrote a persuasive piece arguing whether or not they agreed with the Predator Free by 2050 program (summative).

Assessment 5: Throughout the design cycle, students completed a series of sheets to complete a project of building a possum habitat prototype (formative/summative).

Assessment 6: In groups, students planned, rehearsed and presented what they learned throughout the unit in a variety of creative ways such as a radio interview and play. Groups were given a list of criteria their presentation had to include, in order to help them to succeed in meeting the criteria (summative).

Assessment 7: Throughout the unit, students contributed to a TWLH chart where they posted sticky notes after each lesson on a particular topic. The initial lessons focused on filling the T and W columns, while by the end of the unit students had filled the LH column with answers to their wonderings and other things they had learned (diagnostic/ formative/ summative).

Assessment 8: Students recorded daily observations of the life cycle of a seed they planted in a plastic cup with cotton wool. They each had different seeds to ensure their observations throughout the three weeks were different. Students also watched a video in parts throughout the unit and recorded observations about the life cycle of a tadpole (diagnostic/ formative/ summative).

Matrix of Assessment

	Assessment 1 – Classifying living and non-living things	Assessment 2 – Labelling plant parts	Assessment 3 – Information text about frogs	Assessment 4 – Persuasive text about possum control	Assessment 5 – The design cycle	Assessment 6 – Final presentations	Assessment 7 – TWLH chart	Assessment 8 – Life cycle recording charts
[redacted]	Below	At	Above	At	At	At	At	At
[redacted]	Below	Below	Below	Below	At	At	At	At
[redacted]	Below	Above	Above	Above	Above	At	At	At
[redacted]	At	At	At	At	At	Below	At	At
[redacted]	At	At	Above	At	At	At	At	At
[redacted]	At	At	At	At	At	At	At	At
[redacted]	At	At	At	At	At	At	At	Above
[redacted]	At	At	Above	At	At	Absent	At	Above
[redacted]	Below	Above	Above	Above	Above	At	At	At
[redacted]	At	At	Below	Below	Below	Below	At	Below
[redacted]	At	At	At	At	At	Below	At	Above
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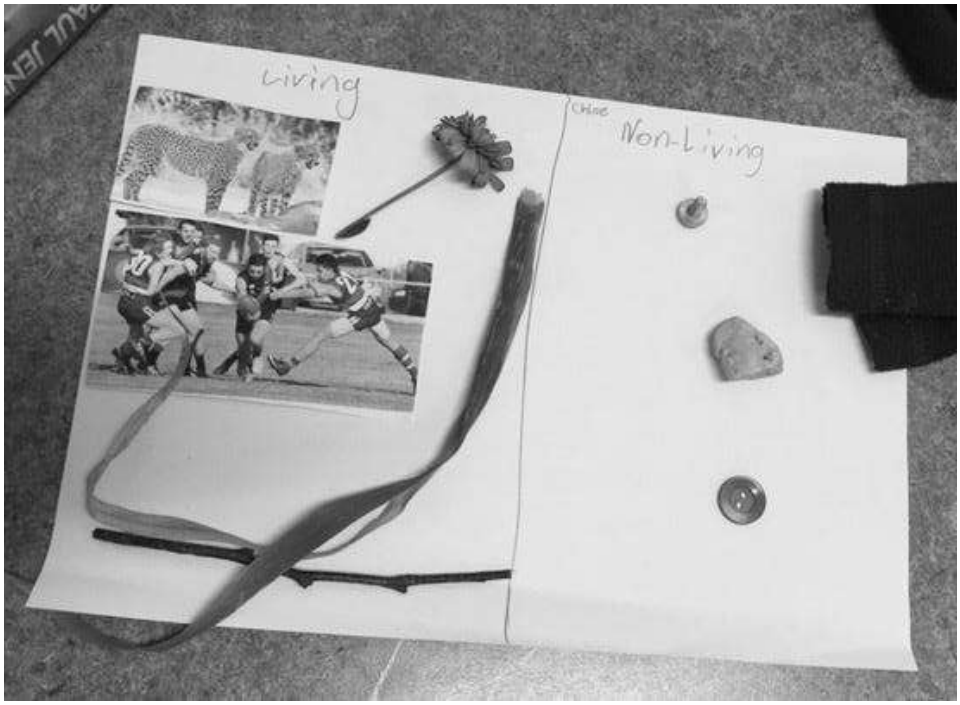
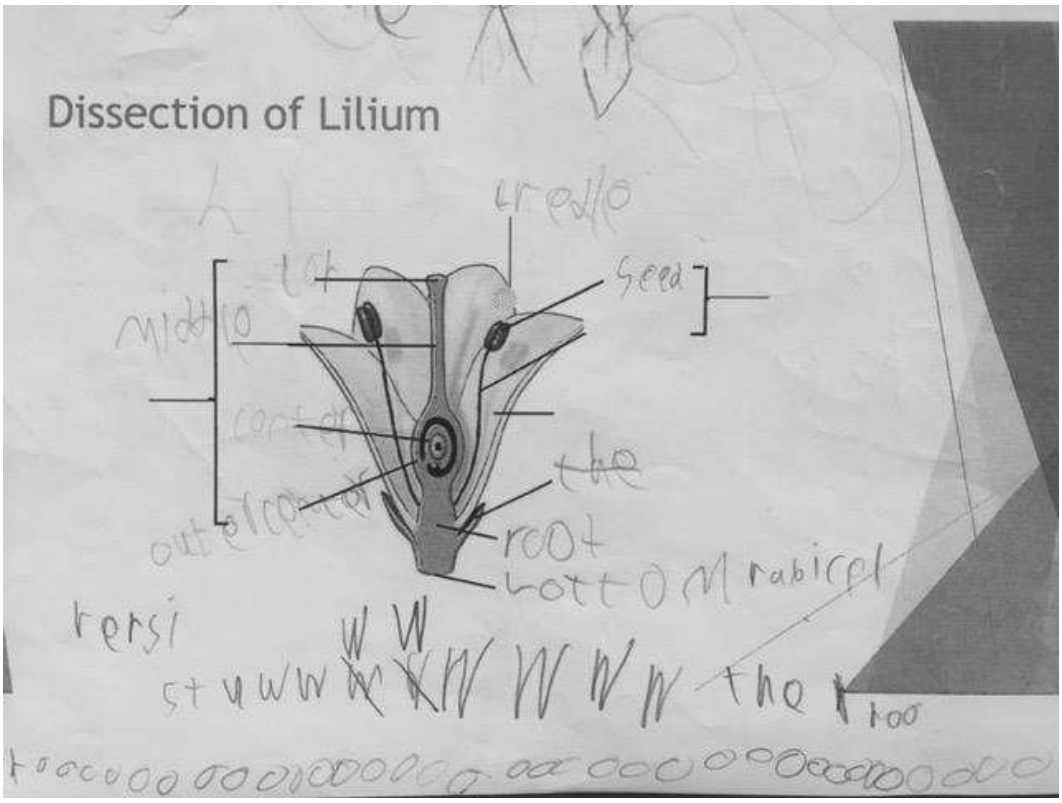
[redacted]	Below	Above	Above	At	Above	At	At	At
[redacted]	At	At	Below	Below	Below	Below	At	Below
[redacted]	At	At	Below	Below	Below	At	At	Below

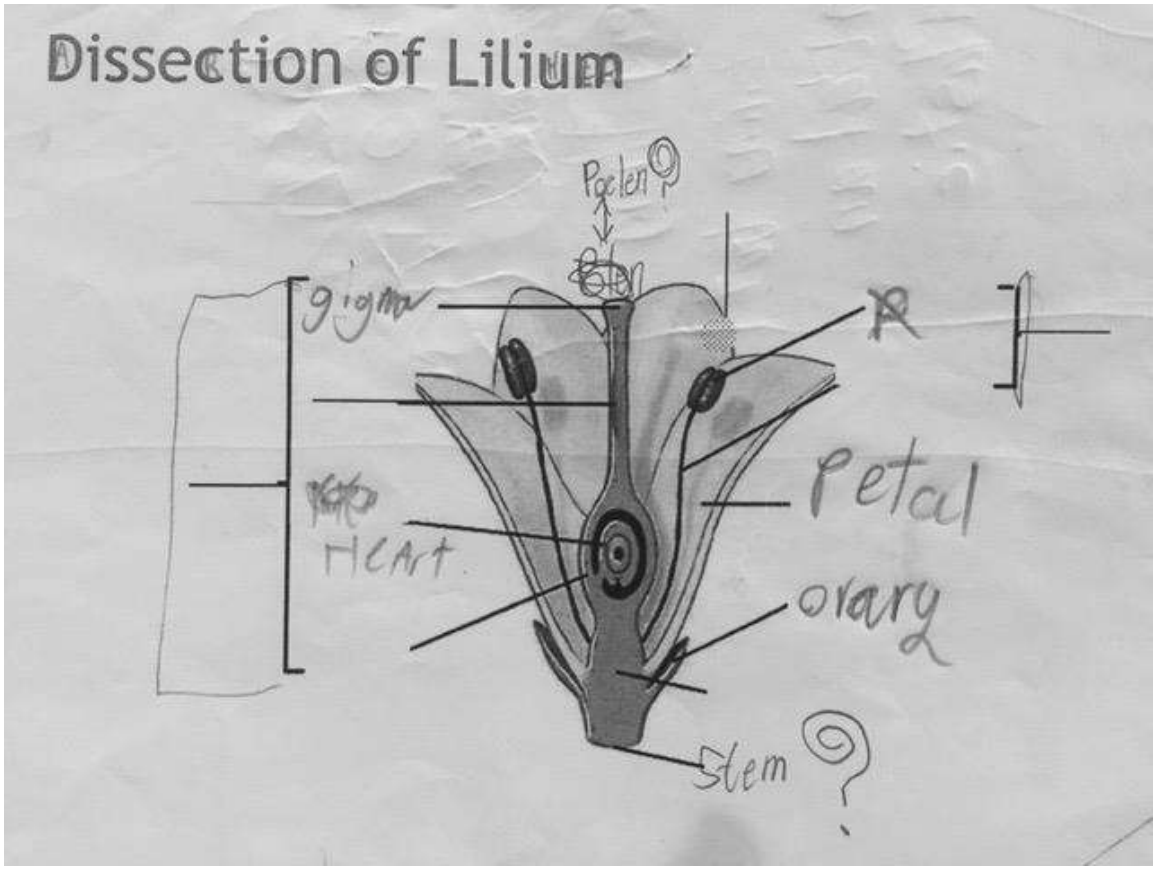
Work Samples

Assessment 1

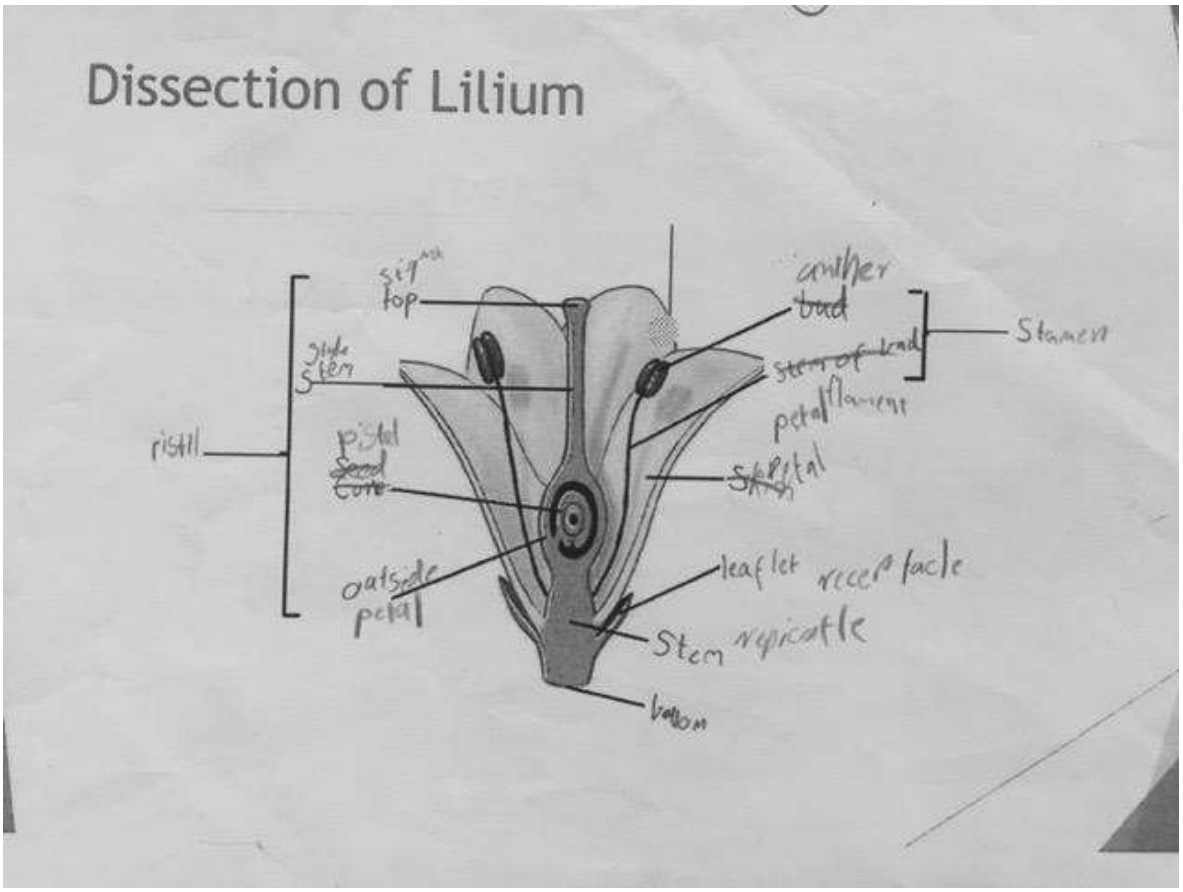


Assessment 2

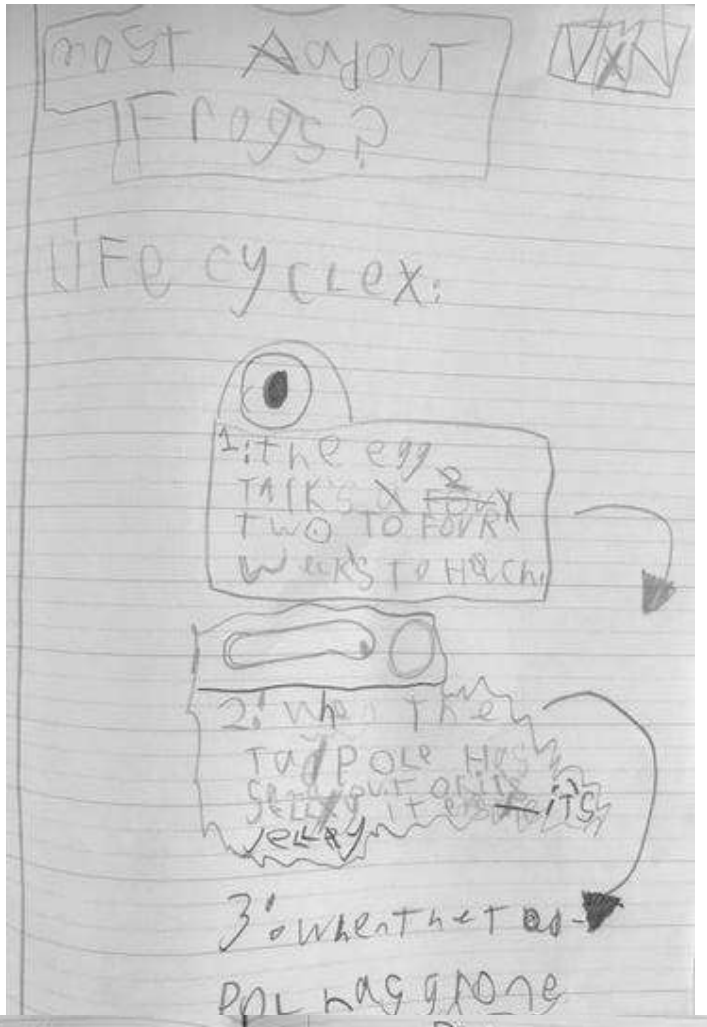




Assessment 2



Assessment 3



All About Frogs

About frogs

Frogs are animals. They are great animals but some types of frogs are really close to be exstinged animals. Frogs are great for lakes and rivers.

The life cycle

A frogs life cycle starts as a egg to a tadpole. To a tadpole with back legs. Next frog with fours back legs. Then frog with tail. Last a frog.

Diet

When frogs are tadpoles they eat the egg jelly. Algy. When they are frogs they eat insects and plants.

- Fun facts

There are 4000 thousand frog spiceses and 200 hundred frog spiceses in Australia. Dark poison frogs have resen there names is dark posien frog. The dark is for on ther back its black to tell that they are posienes. ~~and~~ The posien

Assessment 3

~~Frogs~~ Frogs Coster

All about frogs have 5 different stages befor they become a frog there are over 4,000 frogs in the world 200 are in Australia. Frogs can breath through there ~~sk~~ skin and grows lungs half way through the stag of ~~your~~ the life cicle. ~~D~~ ~~They~~ They are also anfibions with ~~w~~ means the are land and water animals. Some frogs have Poosin so when a animal trys to eat it the animal will die

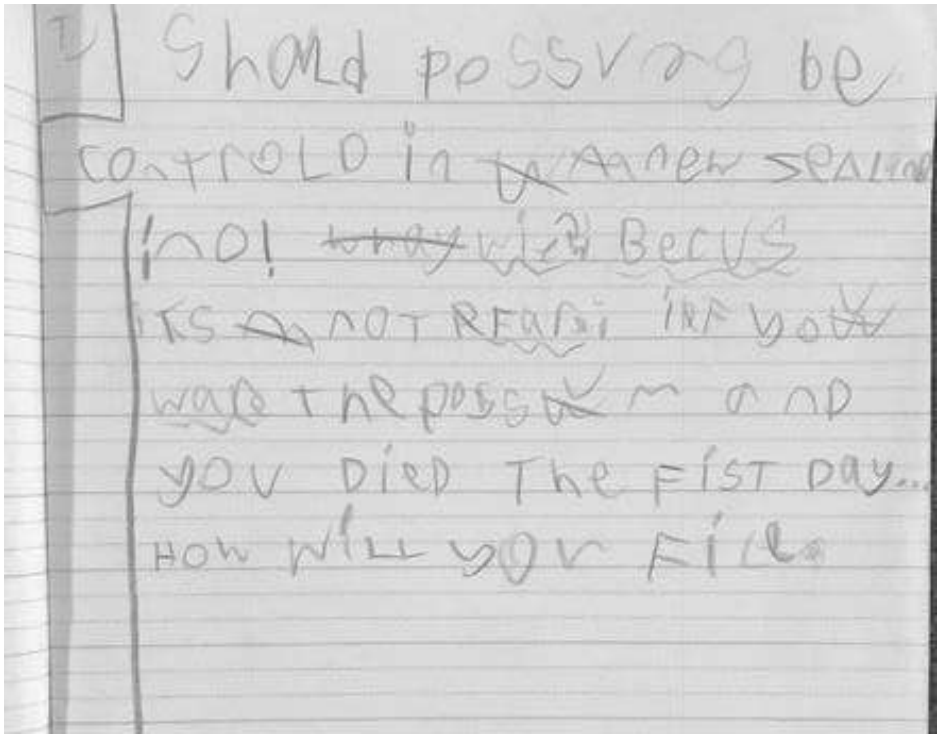
All About Frogs! 12/10/18

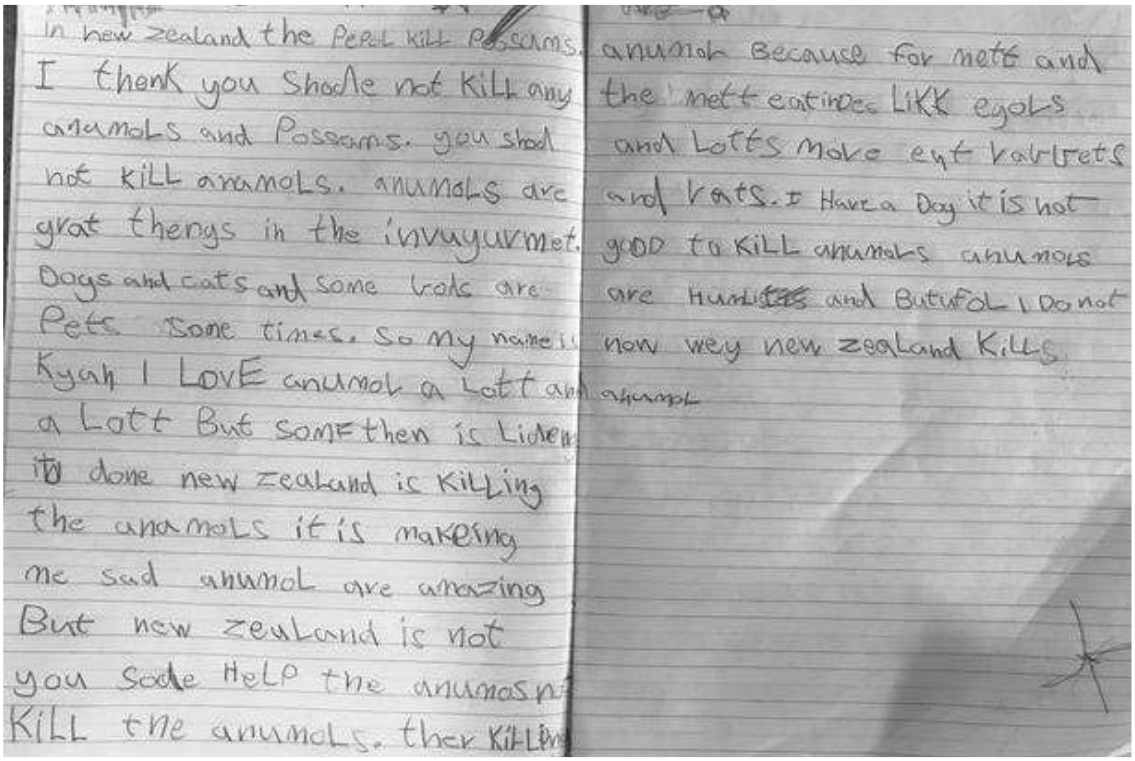
Frogs are amphibians, which means they can ~~walk~~ live on water and walk on land.

Apearence:

Frogs are found in creeks ~~of~~ or rainforests, so they are pretty ~~wawet~~ wet. There a 4,000+ ~~diffrent~~ different ~~typs~~ species of frogs, and more than 200 diffrent species in Australia. The biggest types of frogs can grow up to 75cm long, and the smallest frog can grow upto 2cm long, ~~about as~~ smaller than your finger! Whenever you see ~~them~~ note ~~ta~~ that ~~the out~~ ~~at~~ the more colour you see on a frog, the more dangerous it could be, ~~the m~~ Like frogs.

Assessment 4





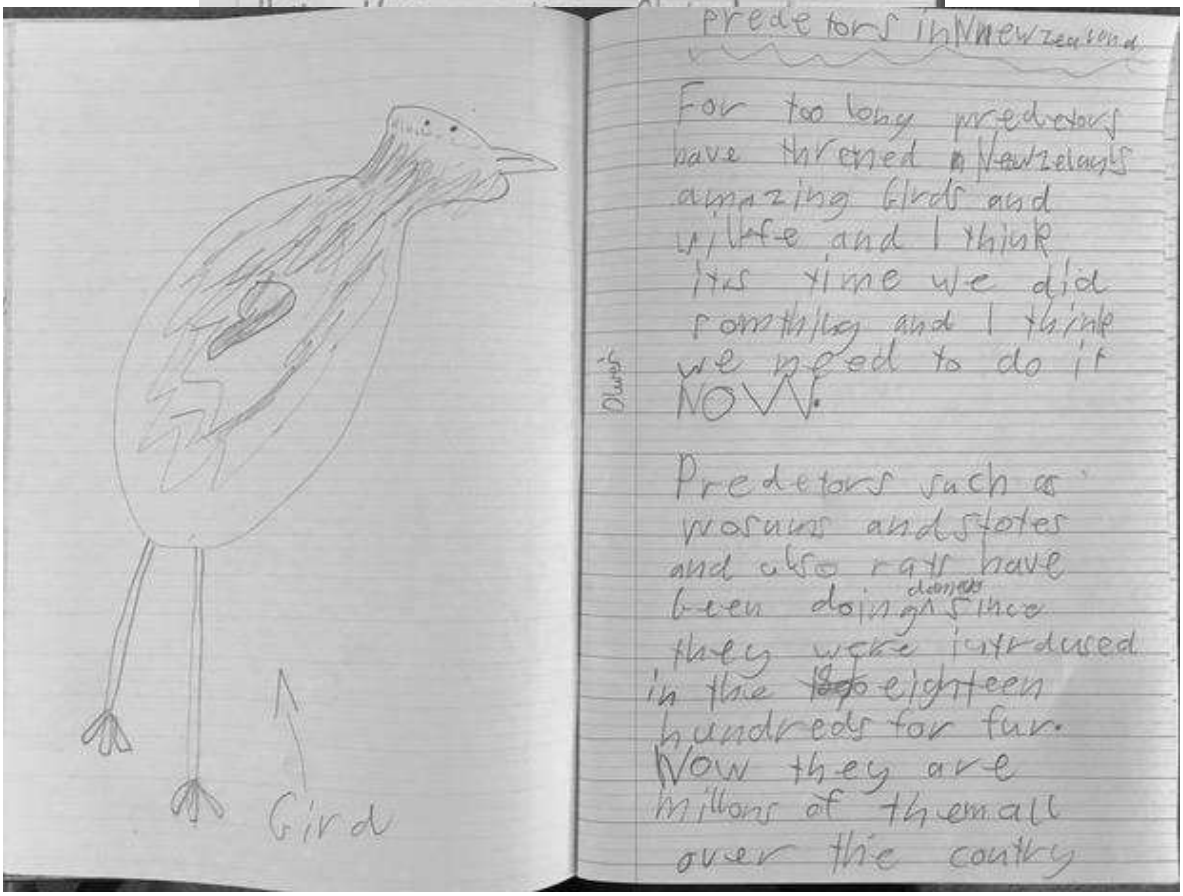
Assessment 4

maggie

In nuowzelend posens are geting Sloted picher this your siting in a tree minding your cone brsnis when boom you got Sot you are foling from a tree how would you feel you couldent ~~feel~~ feal enything.

I thingk posens Should be ceped alive because huomens braing posens to nuowzelend from Astraulea it isent there follt they ceped breding itis the huomens folt.

posens Should not be cilde because they are nogtiv to Austraula they just took them from us and we wont them back it is not fer

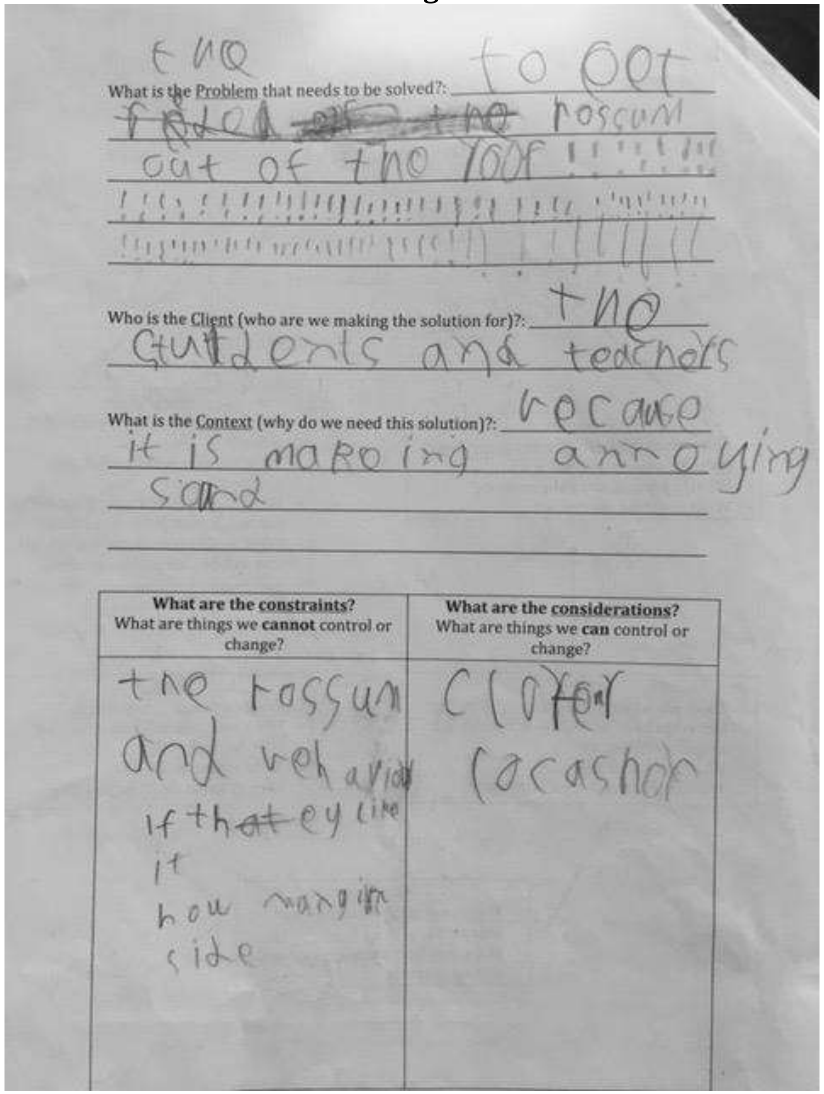


predetors in Newzealand

For too lony predetors have threned Newzelands amazing birds and wilfe and I think its time we did somthing and I think we need to do it NOW.

Predetors such as possums and stotes and also rats have been doing since they were introduced in the ~~18~~ eighteen hundreds for fur. Now they are millons of them all over the conty

Assessment 5 – The Problem/Investigate

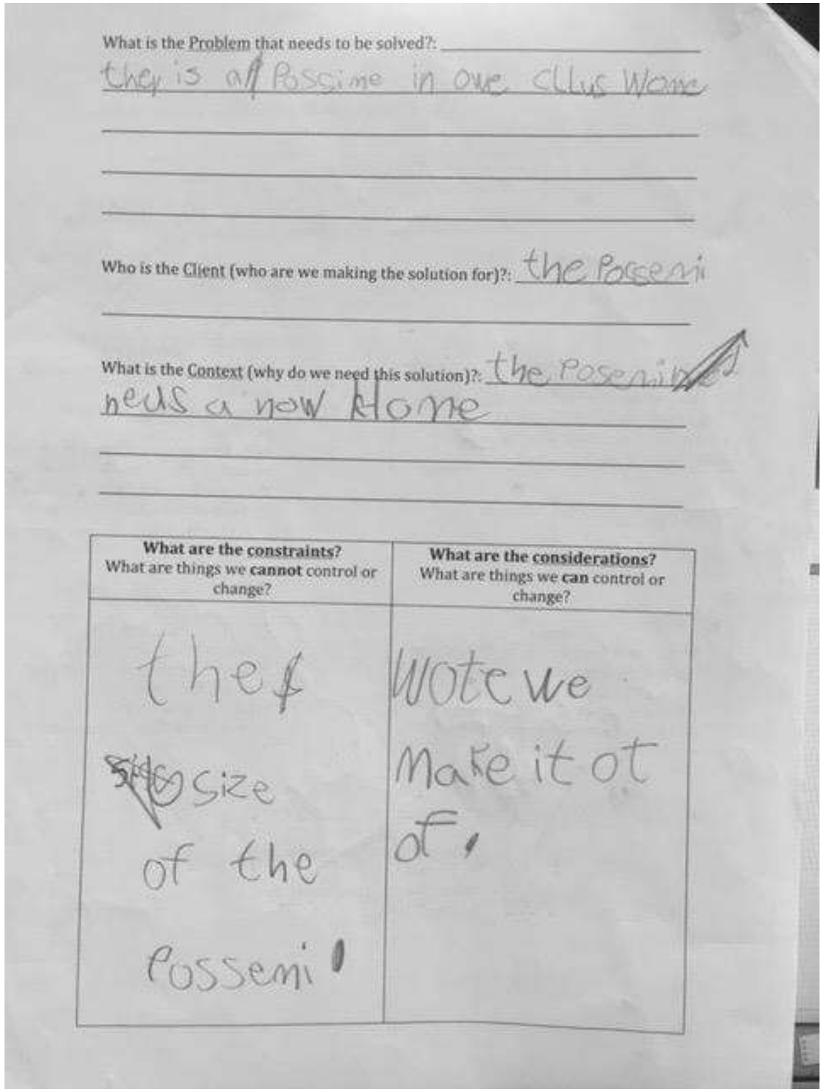


What is the Problem that needs to be solved?: tne to get fred ~~of tne~~ roscum out of tne roof !!!!

Who is the Client (who are we making the solution for)?: tne stutdents and teachers

What is the Context (why do we need this solution)?: becaase it is makeing annoying sand

What are the constraints? What are things we cannot control or change?	What are the considerations? What are things we can control or change?
tne rossum and vehavior if they like it how mangin side	cloter locashon



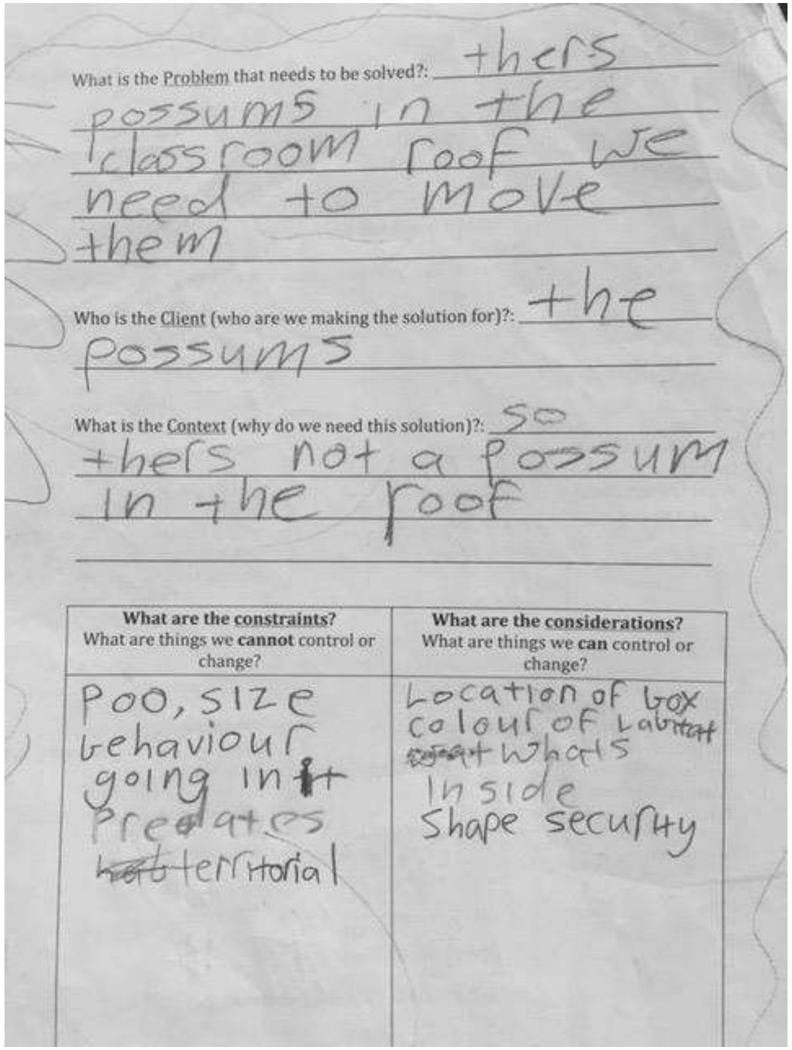
What is the Problem that needs to be solved?: they is af Possime in oue cllus Wome

Who is the Client (who are we making the solution for)?: the Possemi

What is the Context (why do we need this solution)?: the Posemin neds a new Home

What are the constraints? What are things we cannot control or change?	What are the considerations? What are things we can control or change?
thef size of the Possemi	wotewe make it ot of.

Assessment 5 – The Problem/Investigate

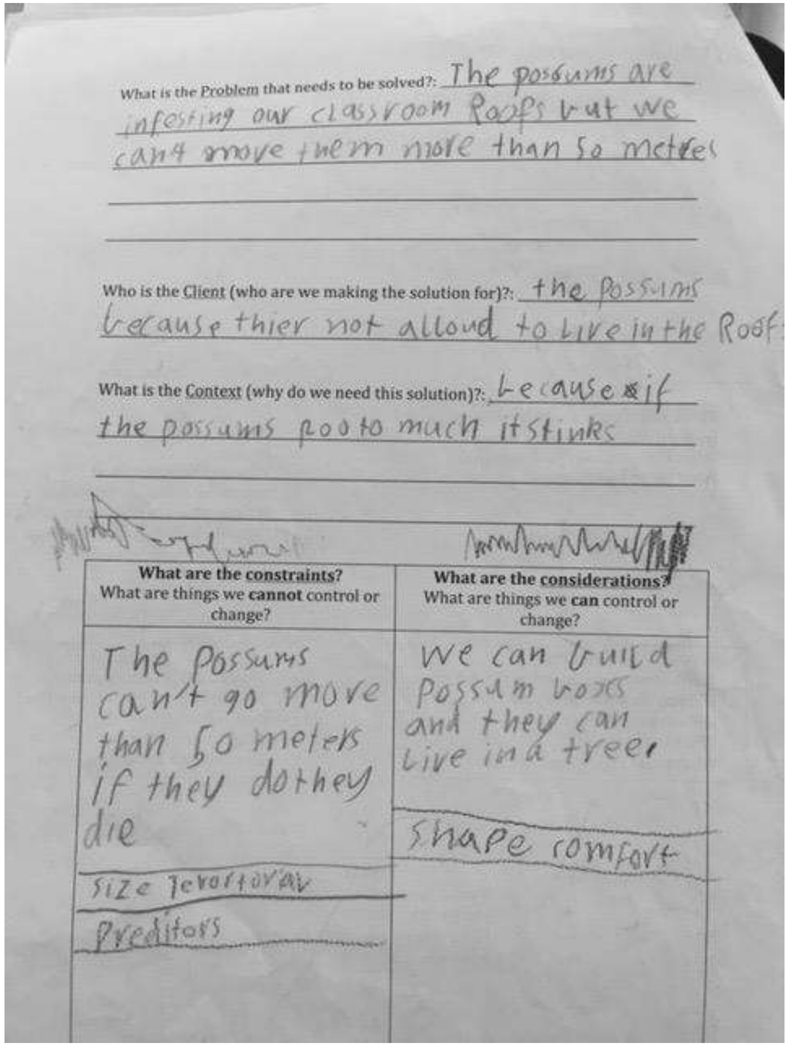


What is the Problem that needs to be solved?: thers possums in the classroom roof we need to move them

Who is the Client (who are we making the solution for)?: the possums

What is the Context (why do we need this solution)?: so thers not a possum in the roof

What are the constraints? What are things we **cannot** control or change?	What are the considerations? What are things we **can** control or change?
Poo, size behaviour going in it Predates ~~hat~~ territorial	Location of box colour of habitat ~~what~~ whats inside Shape securtty



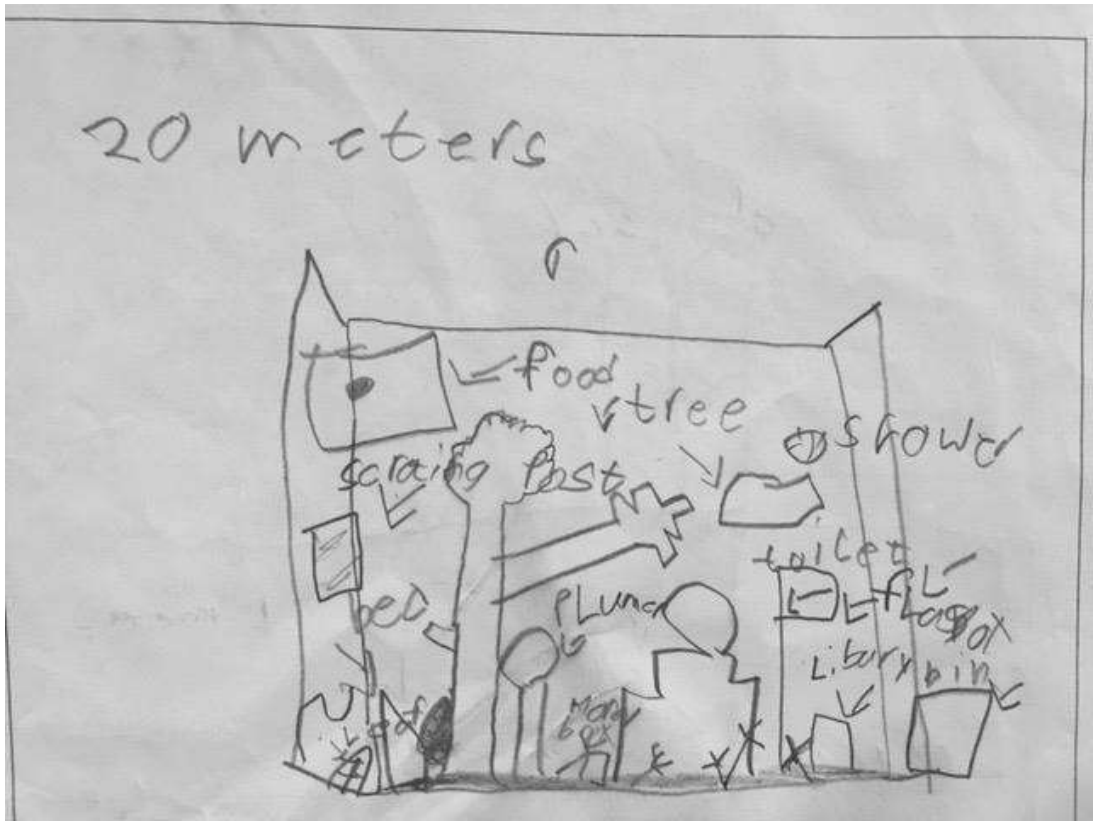
What is the Problem that needs to be solved?: The possums are infesting our classroom Roofs but we can't move them more than 50 metres

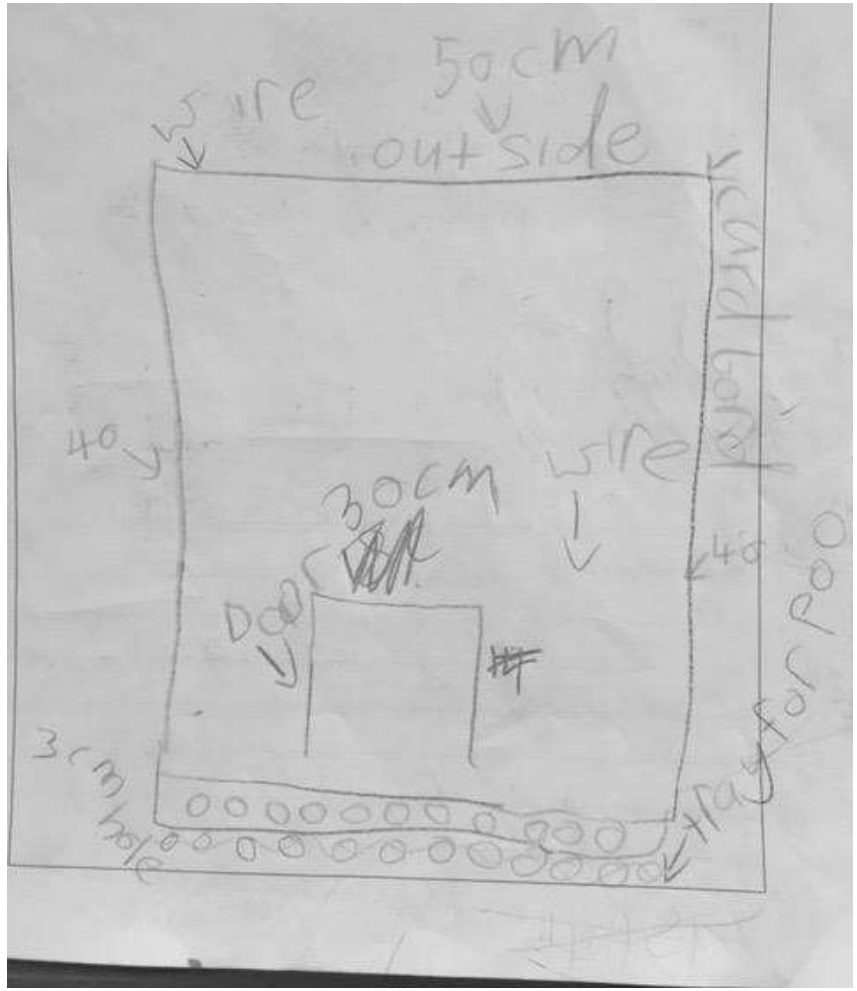
Who is the Client (who are we making the solution for)?: the possums because thier not allowd to live in the Roof

What is the Context (why do we need this solution)?: because if the possums poo to much it stinks

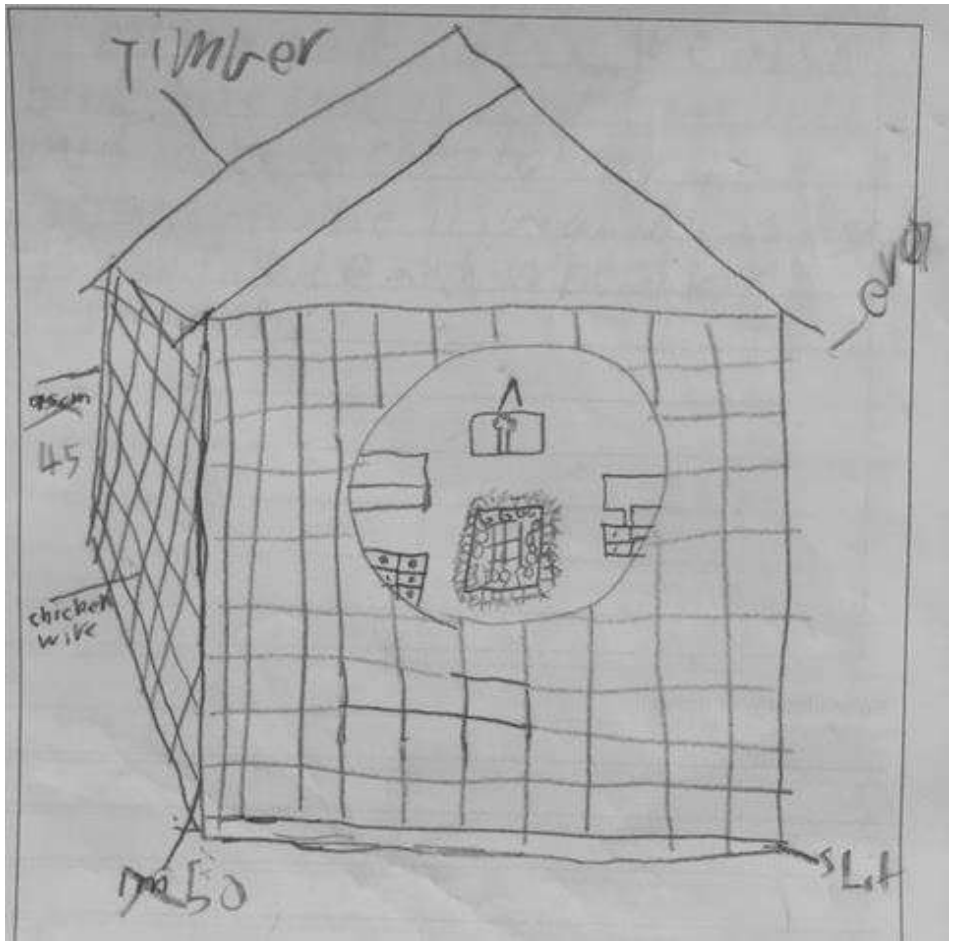
What are the constraints? What are things we **cannot** control or change?	What are the considerations? What are things we **can** control or change?
The possums can't go more than 50 meters if they do they die Size Terortoriay Preditors	We can build possum boxes and they can live in a tree. Shape comfort

Assessment 5 - Design

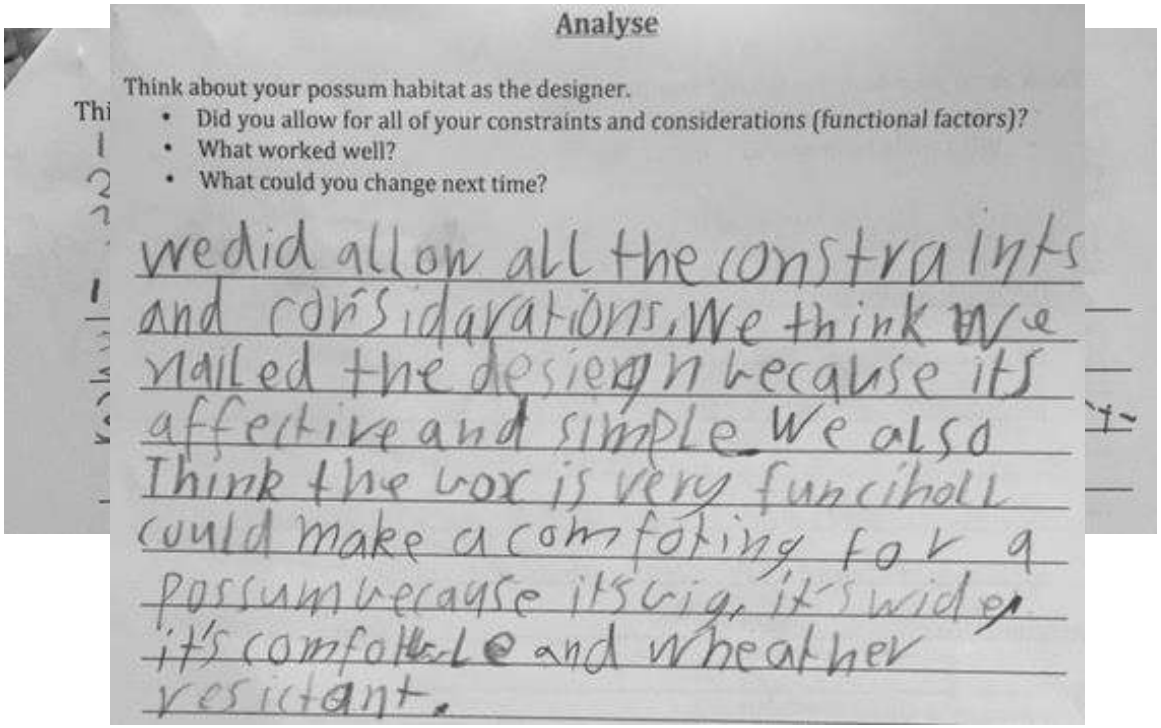




Assessment 5 - Design



Assessment 5 – Analyse

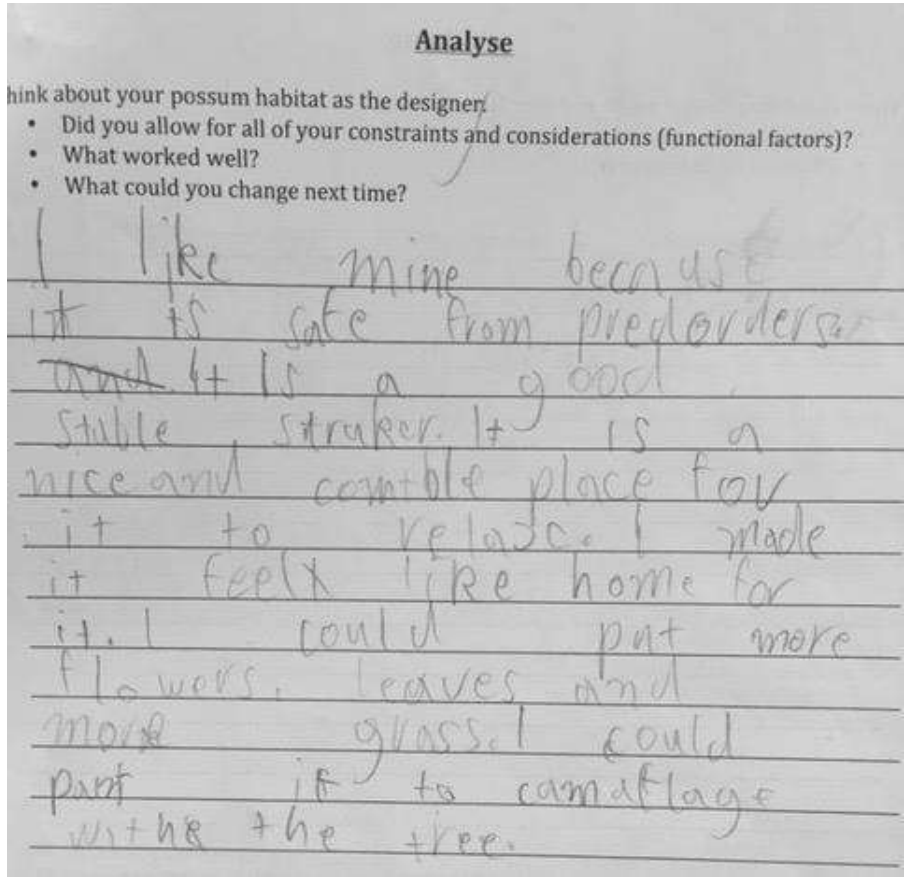


Analyse

Think about your possum habitat as the designer.

- Did you allow for all of your constraints and considerations (functional factors)?
- What worked well?
- What could you change next time?

we did allow all the constraints and considerations. We think we nailed the design because it's affective and simple. We also think the box is very functional could make a comfoting for a possum because it's big, it's wide, it's comfortable and wheather resistant.



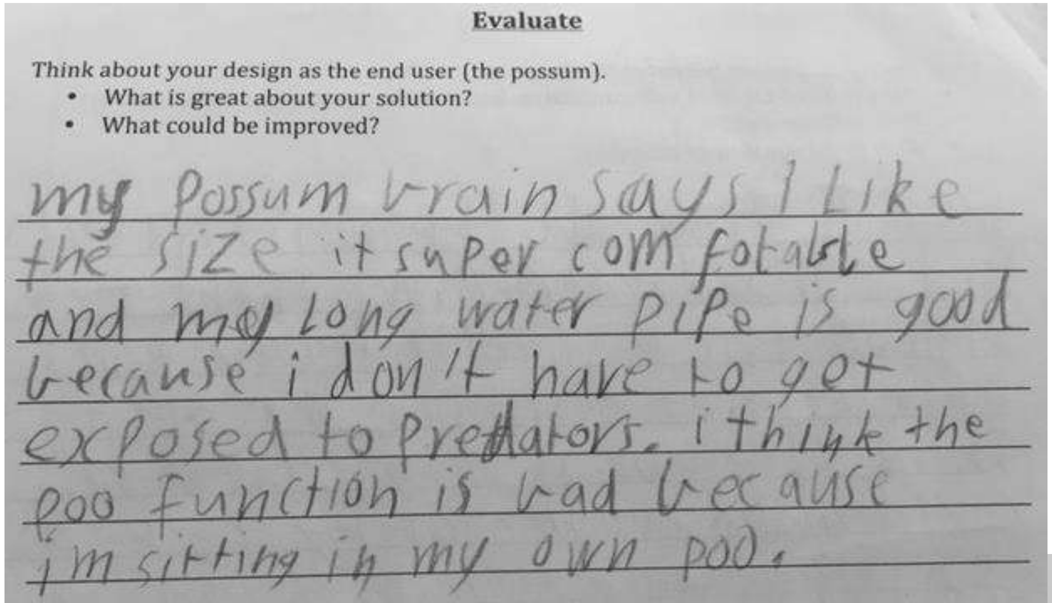
Analyse

Think about your possum habitat as the designer.

- Did you allow for all of your constraints and considerations (functional factors)?
- What worked well?
- What could you change next time?

I like mine because it is safe from predaters. It is a good stable struker. It is a nice and comfable place for it to relax. I made it feelx like home for it. I could put more flowers, leaves and more grass. I could put it to camaflage with the tree.

Assessment 5 – Evaluate

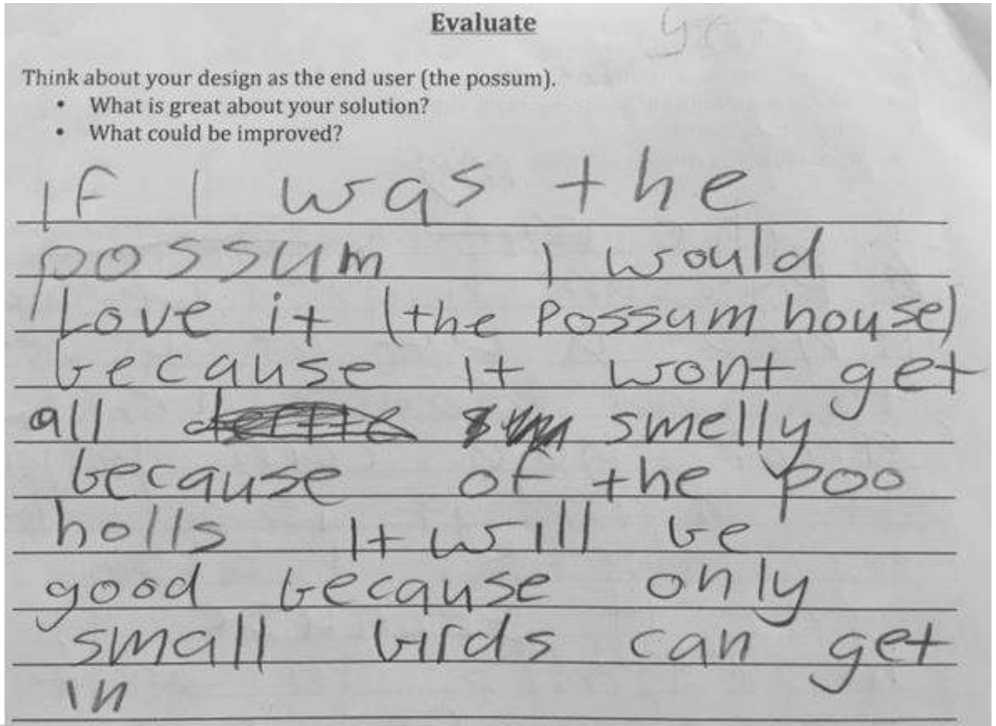


Evaluate

Think about your design as the end user (the possum).

- What is great about your solution?
- What could be improved?

my possum brain says I like the size it super comfotable and my long water pipe is good because i don't have to get exposed to pretdators. i think the poo function is bad because im sitting in my own poo.

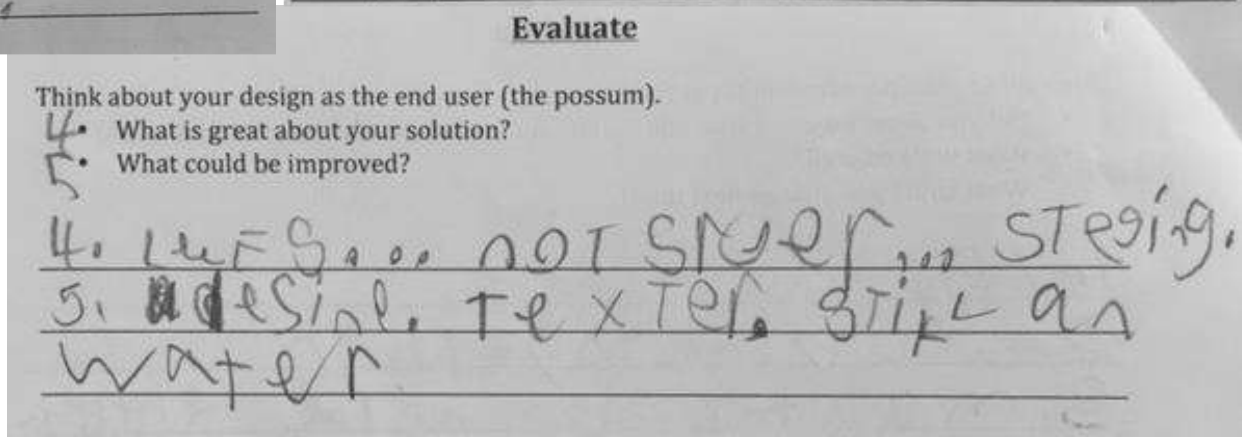


Evaluate

Think about your design as the end user (the possum).

- What is great about your solution?
- What could be improved?

If I was the possum I would Love it (the possum house) because it wont get all smelly because of the poo holls it will be good because only small birds can get in



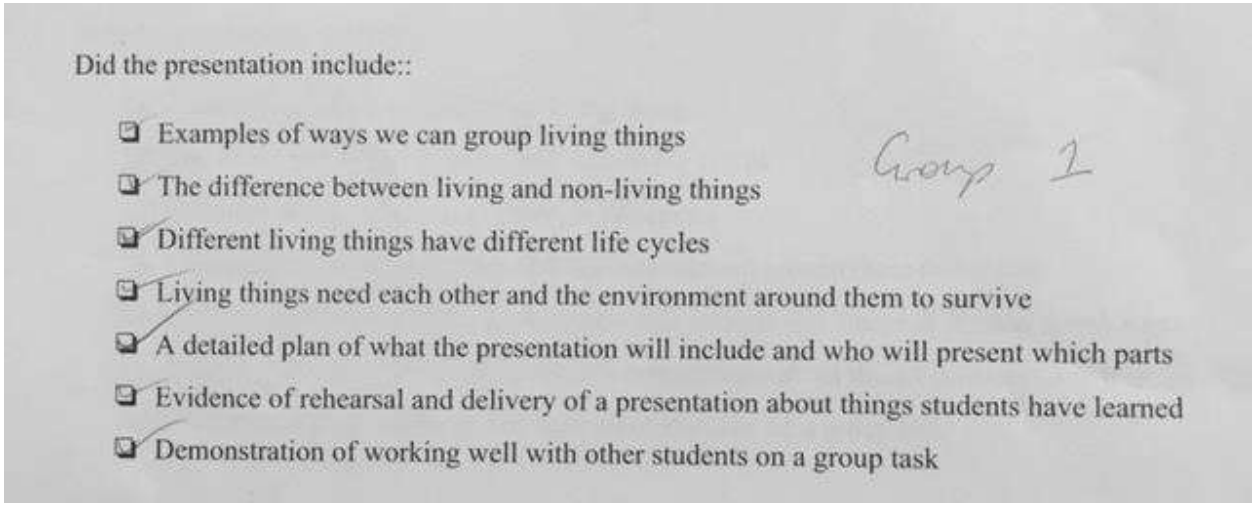
Evaluate

Think about your design as the end user (the possum).

4. What is great about your solution?
5. What could be improved?

4. lufS... not SMer,.. STegig.
5. desinl. TexTer. STik an water

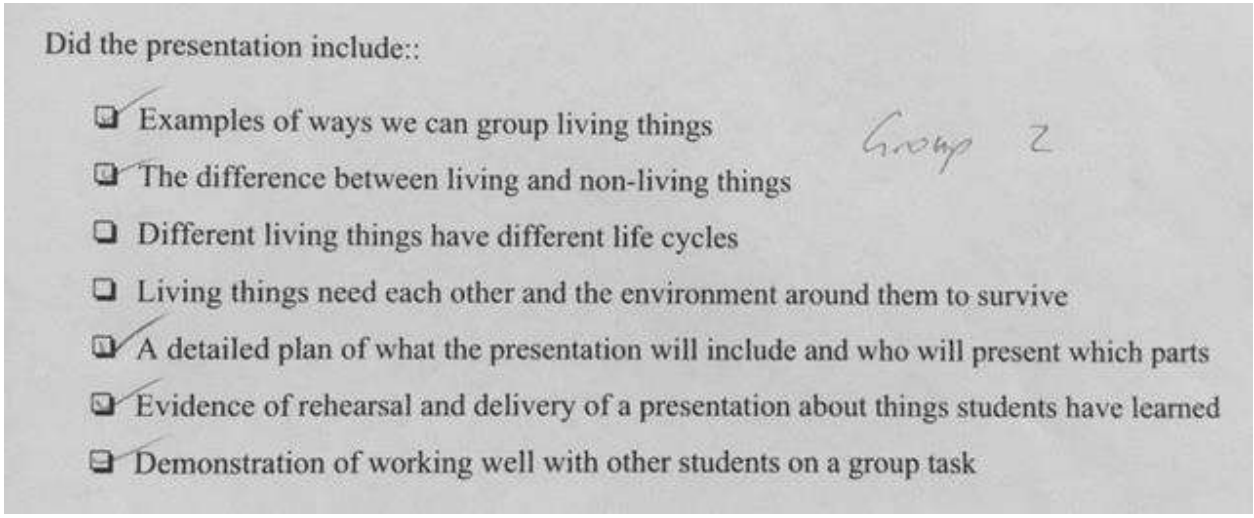
Assessment 6



Did the presentation include::

- ☑ Examples of ways we can group living things
- ☑ The difference between living and non-living things
- ☑ Different living things have different life cycles
- ☑ Living things need each other and the environment around them to survive
- ☑ A detailed plan of what the presentation will include and who will present which parts
- ☑ Evidence of rehearsal and delivery of a presentation about things students have learned
- ☑ Demonstration of working well with other students on a group task

Group 1



Did the presentation include::

- ☑ Examples of ways we can group living things
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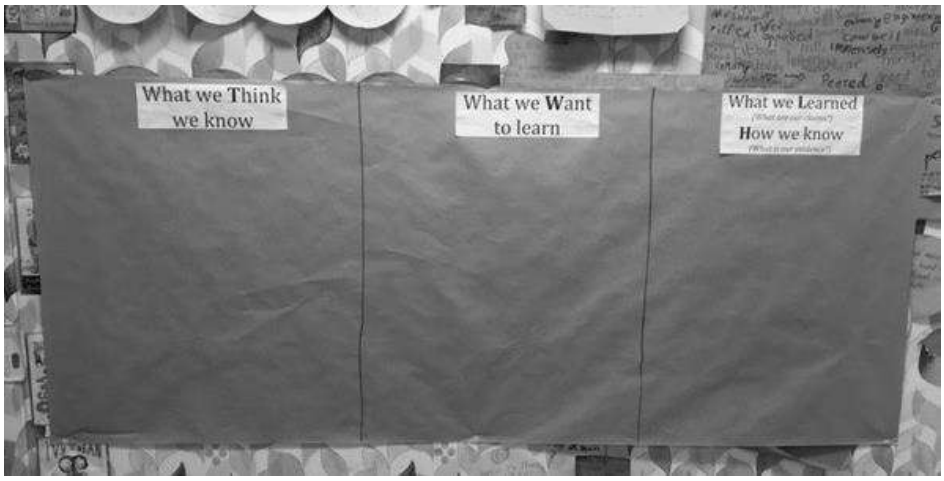
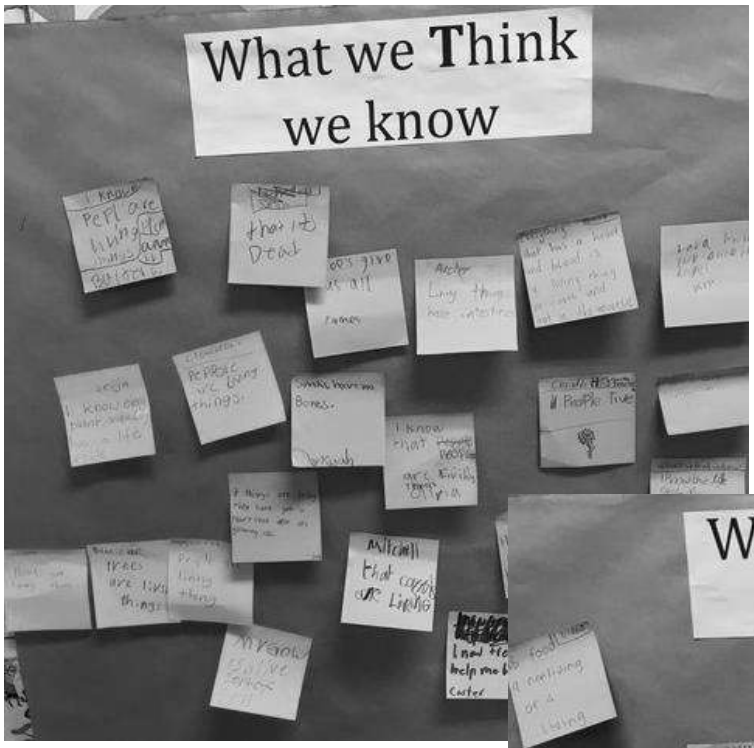
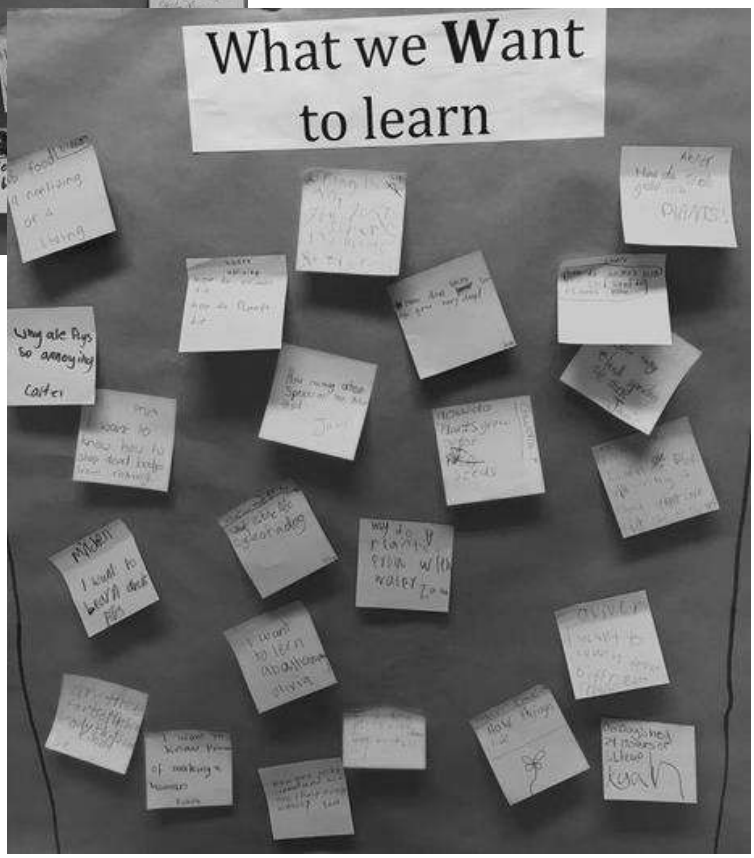
- ☑ A detailed plan of what the presentation will include and who will present which parts
- ☑ Evidence of rehearsal and delivery of a presentation about things students have learned
- ☑ Demonstration of working well with other students on a group task

Group 2

Assessment 7







Assessment 7

Examples of student comments

What we think we know

- Plants are living things
- Living things have intestines
- Everything that has a heart and blood is a living thing on earth and out in the universe
- If things are living they have got a heart beat or it's growing

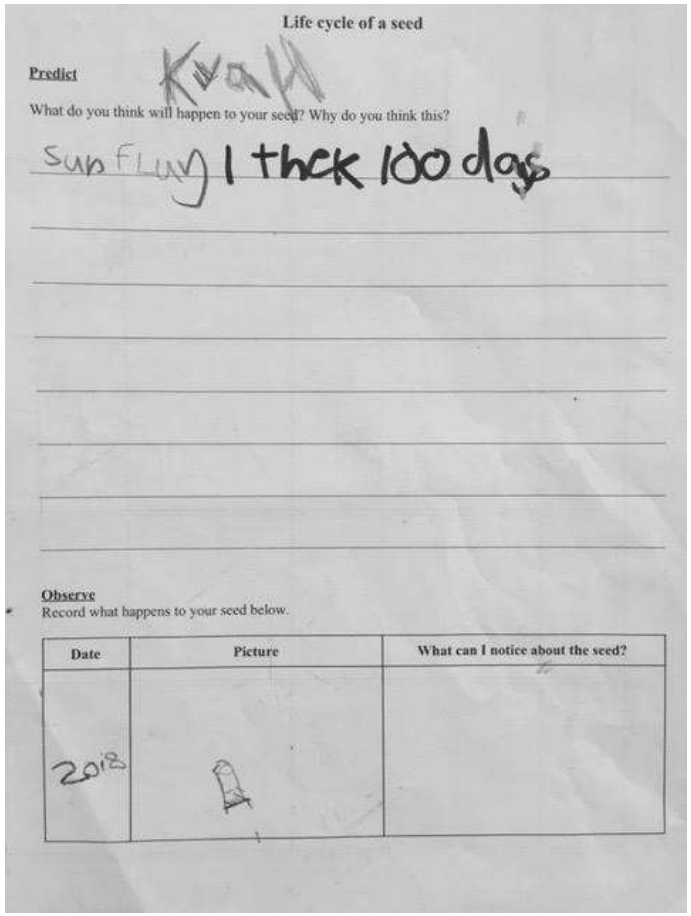
What we want to learn

- D How many eggs can frog lay?
- How do seeds grow into plants?
- Are there parts of the body that's not living?
- I wonder and want to learn how tadpoles turn into frogs
- Is food a nonliving or a living?

What we learned

- Rocks do not live they don't need water and moisture
- Plants have life cycles as well as animals
- I learned that there are more then 200 species of frogs in Australia.
- Plants can reproduce

Assessment 8



Life cycle of a seed

Predict

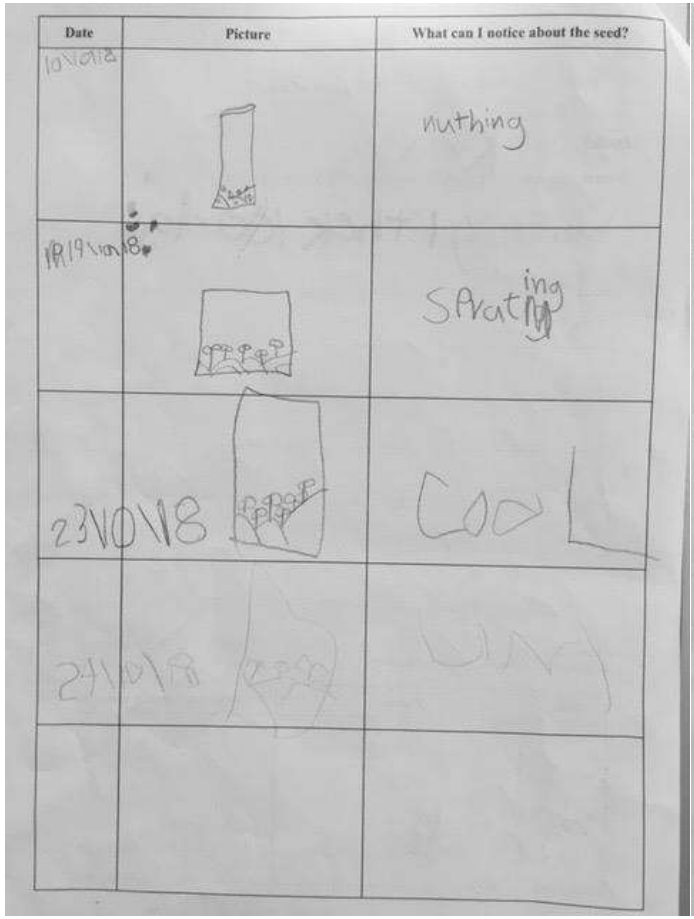
What do you think will happen to your seed? Why do you think this?

sunflwy I thck 100 days

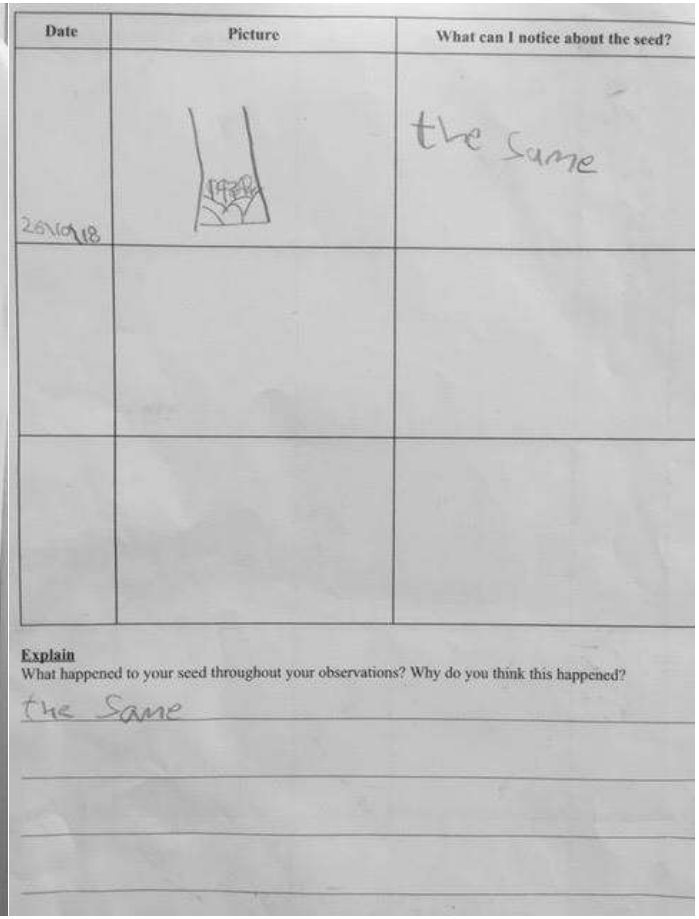
Observe

Record what happens to your seed below.

Date	Picture	What can I notice about the seed?
2018		



Date	Picture	What can I notice about the seed?
10/10/18		nuthing
18/19/10/18		sPratting
23/10/18		COOL
24/10/18		



Date	Picture	What can I notice about the seed?
26/10/18		the same

Explain

What happened to your seed throughout your observations? Why do you think this happened?

the same

Assessment 8

Predict

What do you think will happen to your seed? Why do you think this?

it will grow out of the bottom or any where because seeds grow if you water them

Observe

Record what happens to your seed below.

Date	Picture	What can I notice about the seed?
8/10/18		it's white medium size

Date	Picture	What can I notice about the seed?
9/10/18		Changed colour to brown.
10/10/18		one of the seeds has a black spot in the middle of it
11/10/18		a little bit of black stuff has kinda came out.
12/10/18		the seed has shrunk
15/10/18		the seed has grown

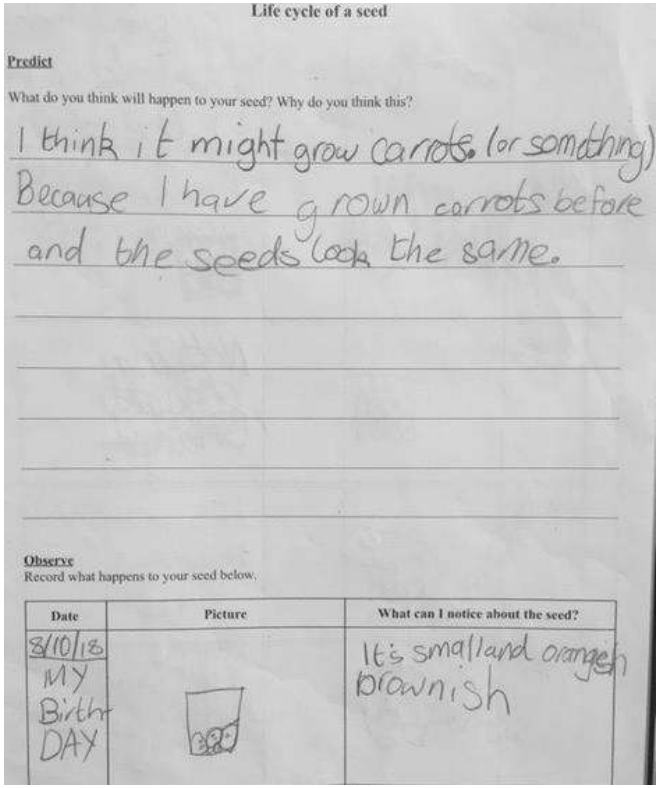
Date	Picture	What can I notice about the seed?
18/18		they're orange and small / it's not growing
23/10/18		its the exact same.
24/10/18		there is a sprout coming out. The colour is orange and grey. It's medium size. It doesn't have a smell.
25/10/18		the orange seeds are splitting. The grey seeds are sprouting

Explain

What happened to your seed throughout your observations? Why do you think this happened?

I think my seed didn't grow is because it's giants.

Assessment 8



Life cycle of a seed

Predict

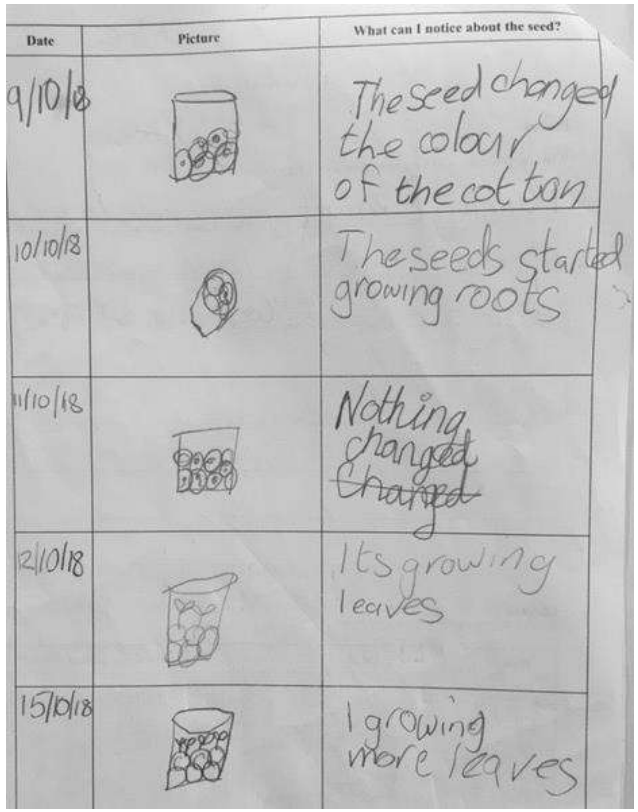
What do you think will happen to your seed? Why do you think this?

I think it might grow carrots. (or something) Because I have grown carrots before and the seeds look the same.

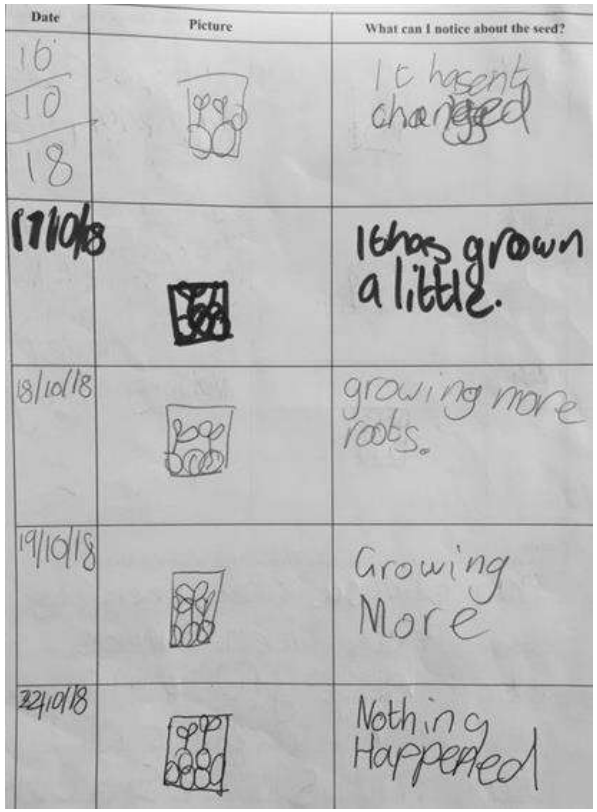
Observe

Record what happens to your seed below.

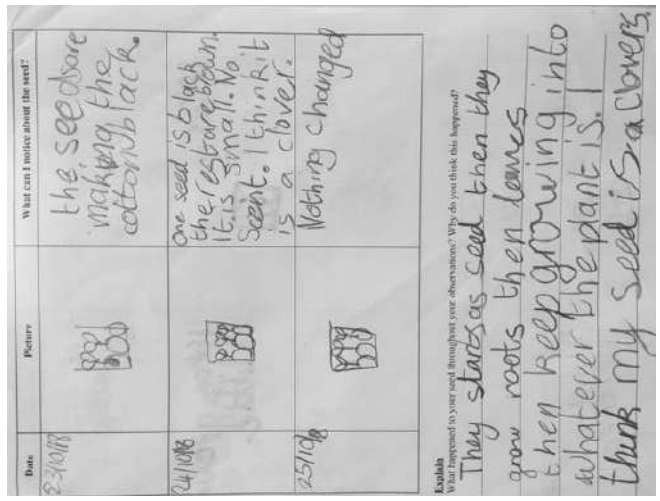
Date	Picture	What can I notice about the seed?
8/10/18 MY Birthday		It's small and orangish brownish



Date	Picture	What can I notice about the seed?
9/10/18		The seed changed the colour of the cotton
10/10/18		The seeds started growing roots
11/10/18		Nothing changed ~~changed~~
12/10/18		Its growing leaves
15/10/18		I growing more leaves



Date	Picture	What can I notice about the seed?
16/10/18		It hasent changed
17/10/18		It has grown a little.
18/10/18		growing more roots.
19/10/18		Growing More
22/10/18		Nothing Happened



Date	Picture	What can I notice about the seed?
8/10/18		the seed are making the cotton black.
24/10/18		one seed is black the rest are brown. It is small. No scent. I think it is a clover.
25/10/18		Nothing changed

Explain
What happened to your seed throughout your observations? Why do you think this happened?
They starts as seed then they grow roots then leaves then keep growing into whatever the plant is. I think my seed is a clovers

MSTIE SELF-REFLECTION

Overview of your experience

After completing out MSTIE placement, we feel our planning beforehand set us up to teach an effective unit. We were incredibly fortunate that our mentor teacher was encouraging and flexible with his weekly timetable to allow us to teach all 15 of our MSTIE lessons. Although some lessons were pushed for time (such as "Green thumbs" where we planted a garden), our diligent planning before each session meant we were able to improvise to overcome any time constraints. We shared the writing up of lesson plans and originally planned to alternate the roles of teaching and gathering evidence/taking notes each session. However, we found ourselves naturally sharing these roles each lesson, particularly with speaking in the instructional and reflection phases. Before placement, our plan was to teach one MSTIE lesson a day, but we were fortunate enough to complete our 15-lesson unit in 14 days. This gave us the last day of our placement to make sure students had completed assessment tasks, such as their seed and tadpole investigations.

Success of Integration

Our mentor teacher gave us his weekly timetable well before our placement started, which allowed us to effectively integrate core subjects such as English, Mathematics and Science throughout our planning. For example, we were able to use the compulsory daily literacy block to integrate reading and writing lessons where students researched and wrote about plants and possums. We sourced a range of relevant online and print texts for these English lessons. This allowed for a seamless integration between subjects and gave the reading sessions a real-world application for students.

Measurement was the main Mathematics concept incorporated throughout the unit. Students used measurement when completing their seed/tadpole life cycle observations, and when when creating the ideal layout for the garden they planted, taking into consideration the final size of the plants when fully grown. Measurement was also a major factor as students progressed through the design cycle to build a possum habitat prototype.

Our unit focused on the scientific concepts of classifying things as living or non-living and observing the different life cycles of living things. Group work was a major component of our unit, which integrated the Personal and Social Capability. Additionally, encouraging students to think deeply about the ideas they encountered incorporated the Critical and Creative Thinking Capability.

Success of Yourself

Ashleigh: I was happy with my efforts this placement considering I live in Shepparton and stayed at a Bendigo hotel across the three weeks. Although I had Wi-Fi at the hotel to do MSTIE work throughout placement, I relied on Steph to print off lesson plans and other classroom resources we needed each day.

Having completed group assignments with Steph previously, I approached MSTIE confident I would perform well because our similar work ethics would result in the workload being shared equally. I wrote up the first half of our lesson plans before placement started to ensure we were fully prepared going into the classroom. I feel I quickly developed positive relationships with students, scaffolding and supporting them to achieve specific learning outcomes. Teaching 15 MSTIE lessons across 15 days was a tricky time management task. One thing I think I can improve on is focusing less on constantly roaming the classroom to support students so they achieve the learning outcomes of a lesson and take more time to sit back and see how students independently solve problems or work in groups.

Overall, I am proud of the unit Steph and I planned and teaching it with her was an enjoyable experience.

Steph: This placement has by far been the highlight of all my placements to date and I was quite surprised that it was one of the least stressful. I feel that the work Ash and I completed before starting placement, as well as the prior classroom visits, really set us up to teach an effective unit.

Ash and I were well-matched for this experience because we have a similar work ethic and are both eager to contribute equally to the task. Additionally, having prior experience working together on group assignments really helped.

In the classroom I felt that our teaching styles complemented each other well. In the first few days I worked on ensuring I knew all of the students' names and on building connections with each of them, which made it easier to connect with them throughout the unit. I feel we both had many opportunities to lead lessons and support each other throughout the three weeks.

I believe I was well organised with the resources I provided and managed to balance lesson planning and preparation and family life relatively well. Time and energy were probably the most challenging limitations for me during this placement, as well as some challenging personal circumstances. However, I feel these had minimal impact upon my ability to deliver in the classroom and to contribute to our MSTIE documentation.

At times prior to placement I felt that Ash completed more of the work to prepare for our time in the classroom, however this was balanced out during placement when I completed the second half of the lesson plans and was able to prepare and bring many of the resources because Ash was staying so far away from home.

Overall, this placement was a very positive experience, which allowed me to develop more confidence and experience in my teaching. I enjoyed working in a team teaching environment and can see the value in teaching fully integrated units.

Success of Your Team

We enjoyed the team planning and teaching opportunity MSTIE provided us. Our past experiences completing group assignments together meant maintaining a professional relationship and sharing the workload was easy. We felt our complementary teaching styles created a natural flow as we taught our lessons, smoothly transitioning between different voices when giving instructions, having a class discussion/reflection or getting the classroom's attention.

The only minor issue was the fact one of us lives in Shepparton and travelled to stay in Bendigo for placement and the other juggles university commitments with raising a young family. However, we had a great understanding to overcome these issues, with constant communication via email or mobile to discuss any MSTIE jobs to be done. Setting up a Google document allowed us to work on MSTIE remotely and Steph printed any resources we needed during placement at her home.

Overall, we are glad we agreed to team up for MSTIE and we are proud of the unit we planned and taught.

Assessment and Learning

Appropriateness of assessments used

We incorporated a combination of hands-on and written assessment tasks relevant to learning intentions embedded throughout the unit. For example, the seed/tadpole life cycle assessments aimed to reflect students' prior, developing and new knowledge throughout the unit. These tasks scaffolded them to progress from their prior knowledge at the start of the unit to using new scientific language when making their observations at the end. The TWLH chart had the same assessment purpose, providing a visual reference of the class' learning journey.

Incorporating the controversial issue of possum overpopulation in New Zealand allowed us to assess students on writing a persuasive piece about whether or not they agreed with the country's plan to control the pest.

The possum habitat prototype Design and Technologies project provided assessment evidence across multiple subject areas. Using the design cycle, we created appropriate hands-on and written activities to assess students in English (writing), Mathematics (measurement), Science (knowledge about possums and how they interact with the environment) and Visual Arts (drawing a possum habitat blueprint).

We also included a number of group activities so we could effectively assess students' collaboration skills. Students worked in the same group throughout the unit, culminating in the last two lessons where they planned, rehearsed and performed a presentation demonstrating what they had learned. Although groups had the freedom to choose the format of their presentation, we gave them the key learning points we wanted them to include. The presentations were a fun way for students to show their learning throughout the unit and we established clear criteria to assess this.

How the children learned differently in MSTIE

We found students were particularly engaged throughout our MSTIE unit. For example, being able to embed reading and writing lessons into our unit gave them a meaningful learning context. Getting students to write an information text about frogs and persuasive piece about New Zealand's possum problem helped them develop knowledge that they continued to use throughout the unit. Meanwhile, the integrated model also allowed students to learn about measurement in the real-world contexts of planting a garden and designing/building a possum habitat prototype. In a variety of situations, students also learned about the importance of collaboration and reflected on what makes an effective group member.

What you learnt differently in MSTIE

MSTIE taught us that teaching an integrated curriculum can provide students with authentic learning experiences across multiple subjects simultaneously. One key thing we learned was that rather than the two-hour literacy block solely having standard English reading and writing learning intentions, we could use online and print texts relevant to our MSTIE unit to give these lessons a meaningful science context. Meanwhile, the design and technology aspect of our MSTIE unit taught us about how such hands-on projects can provide students with engaging integrated learning experiences. This approach aims to develop scientific and technologically literate children and move away from the old pen and paper rote methods of teaching English and Mathematics.

Limitations and Recommendations

Limitations

We felt time was the major limitation of our MSTIE experience. Before starting our three-week placement, we knew we virtually had to teach one MSTIE lesson a day to complete our 15-lesson unit. We were incredibly lucky and grateful our mentor teacher was flexible with his weekly schedule to allocate us sufficient time to teach our 15 MSTIE lessons. In fact, we were able to teach our MSTIE lessons in 14 days, giving us our last day of placement to make sure students had properly completed any tasks we needed for assessment evidence (for example, their seed/frog life cycle observations). Some of our activities - such as the Rosalind Park excursion, garden planting and possum box building - took more time than our lesson plan scheduled for, but we negotiated with our mentor to adjust that day's timetable to compensate for this.

Another minor limitation was the living distance between us as MSTIE partners. One of us lives in Shepparton and travelled to stayed in Bendigo for placement, while the other balance university commitments with raising two young children. However, we easily overcame this problem by creating a Google document so we could simultaneously work on the same MSTIE submission remotely. We also had constant email and mobile phone communication away from university and placement to discuss MSTIE work requirements. At home, Steph was able to print any lesson plans or resources we needed during placement, which compensated for Ashleigh's limitation of staying at a hotel.

Self recommendations

Planning and teaching 15 lessons across 15 days was a challenging time management task. If we taught our MSTIE unit again, we would make sure we allocated sufficient time for quality student reflection at the end of each lesson. We felt some lesson reflections were more rushed than others, particularly after students had built their possum boxes. Striking the right balance between letting students continue a task when they are engaged and allowing enough time to clean the classroom and reflect on the lesson can be difficult as teachers. Another potential recommendation would be to make the possum habitat prototype project a group task, as 27 boxes of various sizes cluttered the classroom afterwards and we had to do our reflection on the basketball court.

We would also allocate a specific lesson for students to answer their wonderings on the TWLH chart. We only found time to do this for early finishers at the end of lessons and, consequently, not all student wonderings from the W column were answered.

If we taught our MSTIE unit again, ideally we would prepare further in advance to try and source some actual tadpoles to raise in the classroom. We would research and contact the relevant authority about the possibility of getting some tadpoles for the classroom. We unsuccessfully tried to catch some ourselves not long before placement and had to settle for showing students a video clip of a frog's life cycle.

The Future

Next year you will be applying for jobs and will need to respond to criteria such as: *Demonstrated understanding of initiatives in student learning including the Standards, the PoLT P-12 and Assessment and Reporting Advice and the capacity to design curriculum programs consistent with their intent.*
The MSTIE Program is embedded within the context of Victorian Curriculum, PoLT and the Assessment and Reporting Advice. Use your MSTIE experience to respond (in 100 words) to the underlined part of this criteria.

Throughout the MSTIE unit we embedded links to the Victorian Curriculum and used these to drive our planning, in order to ensure that student learning met the requirements for the specified grade level. In particular, our unit focused on Biological Sciences and we feel our unit design allowed students to gain a thorough understanding about living and non-living things. Additionally, we were able to authentically integrate the Science unit with other subject areas, in order to make their learning more relevant. This experience has increased our confidence in our ability to plan and implement an integrated unit and make learning relevant, fun and engaging for students, as well as providing adequate assessment opportunities.

LA TROBE UNIVERSITY

MSTIE

Supervising Teacher's Assessment Form (EDU3ISL)

Team (Pre-service Teacher) Names: Ashleigh Williamson and Stephanie McKenzie

School Name: Camp Hill Primary School **Grade:** 3/4B

Supervising Teacher's Name: Ryan Gow

RATING:

1. Outstanding 2. Very Good 3. Good 4. Reasonable 5. Poor – in need of assistance

NB: Only one rating required per category

↓

Category	Rating	Comments
a. Preparation/Planning		As a team, I was continually impressed by their ability to be prepared and well-planned before each and every lesson. Initially, they made contact early, to ensure the opportunity to develop professional relationships with the class of students before their unit began. From the onset, they had a range of assessments implemented to judge student knowledge and guide their program based on student data.
Reliable and communicated well before practicum.	1	
Lead up visits completed. (approximately six)	1	
Unit well planned, organised and inclusive.	1	
Assessment well planned.	1	
b. Teaching Techniques		Throughout the MSTIE unit, Ash and Steph continued to impress me with their ability to structure their lessons in an engaging and well-structured manner. Their introductions always included prior knowledge and a 'hook' and consistently included a strong reflection towards the end of the session.
Lesson structure – effective introductions and conclusions.	1	
Clarity and appropriateness of instructions and assessment.	1	
c. Classroom Management		The mixed ability groups, which were maintained throughout the unit, worked well for this Science and D&T program. They quickly identified behaviour issues within the class and incorporated our classroom management styles and school values to manage these.
Organisation of groups / individuals.	1	
Manage behaviour and follow class rules and procedures.	1	
d. Relationship With Students		Throughout the entire three week program, the pair were consistently making professional connections with the students to engage the students. They went above and beyond to ensure that this group of students were participating and feeling involved in the unit of work.
Ability to relate to and be interested in, students.	1	
Ability to encourage participation and involve all students.	1	
e. Personal Qualities		Seriously, you couldn't find a pair of teachers who worked better as a team. They are supportive, encouraging and willing to take feedback on board to constantly improve their practise. They are extremely enthusiastic and professional. As an experienced teacher, I cannot express in words how privileged I have felt to have the opportunity to work closely with this pair. I look forward to hearing about your many successes teachers in the future.
Level of enthusiasm.	1	
Ability to work as a team.	1	
Willingness to accept and act on advice.	1	
Professionalism – punctuality, reliability, eagerness to learn.	1	

OVERALL ASSESSMENT OF PERFORMANCE (Please tick appropriate box)

☐ **Poor** ☐ **Reasonable** ☐ **Good** ☐ **Very Good** ☑ **Outstanding**

Are there any concerns about any of the pre-service teachers that you would like to bring to our attention?

Supervising Teacher's Signature _____ **Date** 25/10/2018.