

Science

Year 2
Above satisfactory

WORK SAMPLE PORTFOLIO

Annotated work sample portfolios are provided to support implementation of the Foundation – Year 10 Australian Curriculum.

Each portfolio is an example of evidence of student learning in relation to the achievement standard. Three portfolios are available for each achievement standard, illustrating satisfactory, above satisfactory and below satisfactory student achievement. The set of portfolios assists teachers to make on-balance judgements about the quality of their students' achievement.

Each portfolio comprises a collection of students' work drawn from a range of assessment tasks. There is no pre-determined number of student work samples in a portfolio, nor are they sequenced in any particular order. Each work sample in the portfolio may vary in terms of how much student time was involved in undertaking the task or the degree of support provided by the teacher. The portfolios comprise authentic samples of student work and may contain errors such as spelling mistakes and other inaccuracies. Opinions expressed in student work are those of the student.

The portfolios have been selected, annotated and reviewed by classroom teachers and other curriculum experts. The portfolios will be reviewed over time.

ACARA acknowledges the contribution of Australian teachers in the development of these work sample portfolios.

THIS PORTFOLIO: YEAR 2 SCIENCE

This portfolio provides the following student work samples:

- Sample 1 Investigation: How to make water clean
- Sample 2 Design task: Materials swap
- Sample 3 Investigation: Pushing cars
- Sample 4 Investigation: Water at home and at school
- Sample 5 Worksheet: Life stages
- Sample 6 Worksheet: Science in daily life
- Sample 7 Investigation: Rocky road
- Sample 8 Worksheet: Classifying mixtures

In this portfolio the student describes changes to the position of objects as a result of applying a push (WS3) and changes to living things, particularly growth and changes in behaviour (WS5). The student considers water as a resource and identifies its uses in daily life (WS4). The student investigates the properties and uses of a variety of materials and mixtures (WS2, WS7, WS8) and considers the best mix of materials to construct an object for a particular purpose (WS2, WS7, WS8). The student links science practices to activities in daily life, such as food production (WS7).

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The student demonstrates the ability to predict outcomes of investigations (WS1, WS3, WS7) and uses informal measurements (for example, 'clear', 'biggest', 'harder') when recording and comparing observations (WS1, WS3, WS7). The student conducts investigations (WS1, WS3, WS4, WS7), follows teacher instructions to record and represent observations (WS1, WS2, WS3, WS4, WS5, WS6, WS7) and communicates ideas to others using drawing, written text and labelled diagrams (WS1, WS2, WS3, WS4, WS5, WS6, WS7, WS8).

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Investigation: How to make water clean

Year 2 Science achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

By the end of Year 2, students describe changes to objects, materials and living things. They identify that certain materials and resources have different uses and describe examples of where science is used in people's daily lives.

Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare observations. They follow instructions to record and represent their observations and communicate their ideas to others.

Summary of task

Students had engaged in class discussions about the use and cleanliness of water as part of a focus on sustainable use of resources. They had been explicitly taught how to construct a procedural text.

The students were shown a range of materials that could be used to filter dirty water. They chose between filter paper, cotton wool and gauze to construct their filter, then designed an experiment to investigate whether they were able to filter the water successfully. Students were provided with a template to help them construct their investigation report, and the teacher took photos of their procedure to help them construct the steps of the investigation.

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Investigation: How to make water clean

Annotations

Title:

Sand And Soil Clear Water Experiment

Materials:

- sand - ~~two~~ handfuls
- soil - one handful
- grass - one handful
- leaves - one handful
- pebbles - ~~one~~ 1/2 handful
- water
- Jug or jar
- filter paper
- flower pot

My prediction (hypothesis):

*the mud will get stuck in the sieve
~~then slowly drip out of it~~ because
 it is not as drippy ^{as the water} and is not a
 liquid*

Uses informal measurements to construct the investigation.

Makes a plausible prediction about the effect of the filter.

Investigation: How to make water clean

Annotations

Records detailed steps to investigate the effect of the filter.

- Steps:
- ① Put flower-pot on filter-paper and trace ^{to make a circle on filter-paper.}
 - ② cut out circle on filter-paper.
 - ③ put the circle of filter-paper on the bottom of the flower pot so no holes show.
 - ④ pour two handfuls of sand on top of filter-paper and pat it down.
 - ⑤ make a layer of pebbles on top of sand.
 - ⑥ put soil, leaves and sand into a Jug or Jar with water in it and mix it till it becomes muddy.
 - ⑦ put a ^{bucket} ~~bucket~~ under the flower-pot then pour the muddy water into it.
 - ⑧ hold the flower-pot ^{directly} above the bucket and watch the water come out of the bottom of the pot.
- What colour is the water?
- (P.S. It might take a little while for the water to come out.)

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Investigation: How to make water clean

Results:

the mud got stuck in the filter-paper and the water came out clear. I did the experiment twice because ~~the~~ the first time I did the filter-paper too small and all the sand came out.

Conclusion:

It was the same as my prediction. ~~because~~ It was successful because I used a bigger piece of filter-paper.

Annotations

Records observations of the results, including informal measurements of the quality of the filtered water.

Identifies a problem with the initial method.

Compares observations with predictions and identifies modifications to the method required.

Annotations (Overview)

The student communicates ideas, investigation steps and observations through written text.

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Design task: Materials swap

Year 2 Science achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

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Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare observations. They follow instructions to record and represent their observations and communicate their ideas to others.

Summary of task

Prior to undertaking this task, students participated in a materials treasure hunt around their classroom. They were asked to find all of the places where certain materials were used and provide an explanation for their use. For example, glass can be found in windows and doors because it is clear, which means we can see through it.

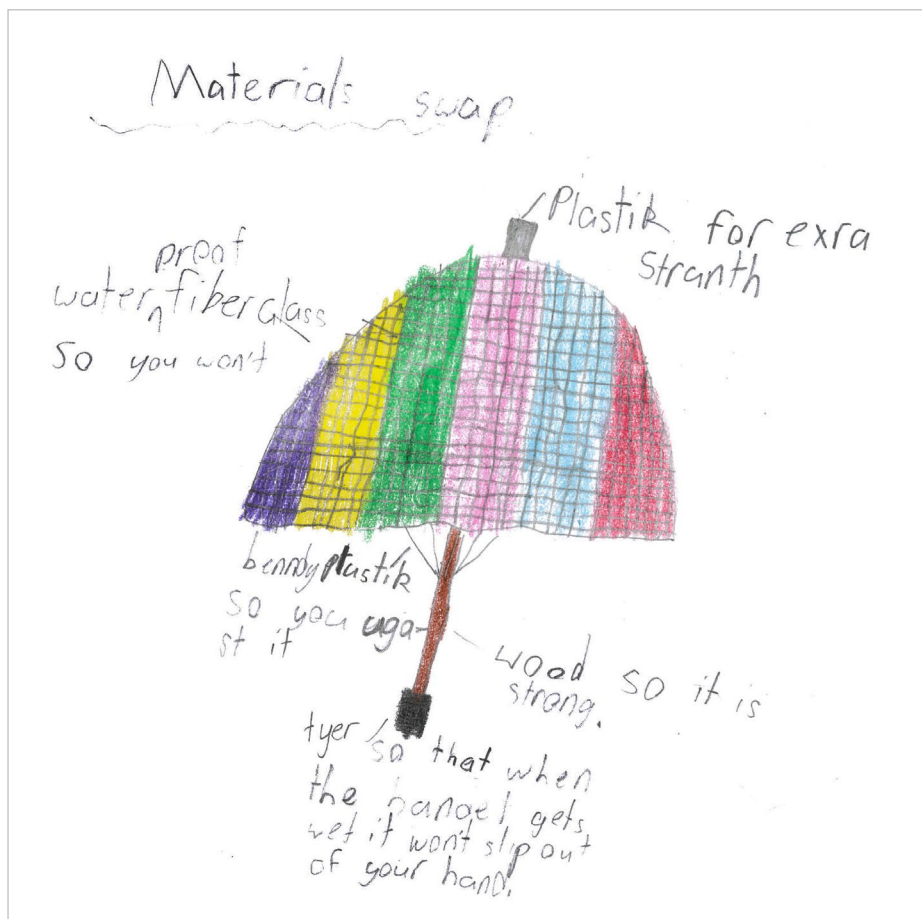
For the task itself, students focused on the materials in an umbrella. They were asked to identify the materials and consider why different materials were used. Students then completed a 'materials swap' in order to improve the umbrella. They were asked to draw their umbrella and explain which materials they had replaced and why.

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Design task: Materials swap



Annotations

Identifies that the object is made up of different materials.

Identifies alternative materials to replace three different parts of the object.

Identifies properties of materials.

Links properties of materials to the use of the material in the object.

Annotations (Overview)

The student communicates ideas through written text and an annotated diagram.

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Investigation: Pushing cars

Year 2 Science achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

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Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare observations. They follow instructions to record and represent their observations and communicate their ideas to others.

Summary of task

Prior to undertaking this task, students explored all the ways they could change the shape of objects, or the ways they could change how objects moved. They observed students on play equipment and discussed how different strengths of pushes and pulls were involved in changing movement.

Students were asked to investigate the effect of different-sized pushes on the movement of a toy car. They were given an investigation worksheet to complete, but were required to develop their own means of describing and comparing their results. Students worked in small groups to complete the investigation and then developed their reports independently.

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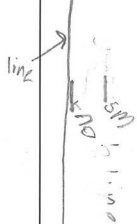
Investigation: Pushing cars

Annotations

Pushing Cars Investigation

I predict that a medium push push will make the car go further than a little push push.

What happened?



What happened?

well the big push went further than the push
because the medium push was like a
meter away from big push.
No push was one millimeter away with small
push because no push was completely
on the line.

Did my observations match my predictions?

yes it did

Makes a prediction that links the size of the push to the distance it will travel.

Uses informal measurements and some formal measurements to make observations.

Constructs a representation to share observations, including an indication of scale.

Compares observations using formal and informal measurements.

Identifies that each different strength of push resulted in a different distance travelled, including that no push means the car didn't travel at all.

Annotations (Overview)

The student communicates ideas and observations through written text and an annotated diagram.

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Investigation: Water at home and at school

Year 2 Science achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

By the end of Year 2, students describe changes to objects, materials and living things. They identify that certain materials and resources have different uses and describe examples of where science is used in people's daily lives.

Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare observations. They follow instructions to record and represent their observations and communicate their ideas to others.

Summary of task

Prior to undertaking this task, students had engaged in a class discussion about where water was used at school and for what purposes. They recorded and shared their ideas as a class, grouping ideas under the headings of 'Where does water come from?', 'What is water used for?', 'Who or what uses water?' and 'What does it mean to use water responsibly?' Students then walked around the school to confirm or modify their ideas.

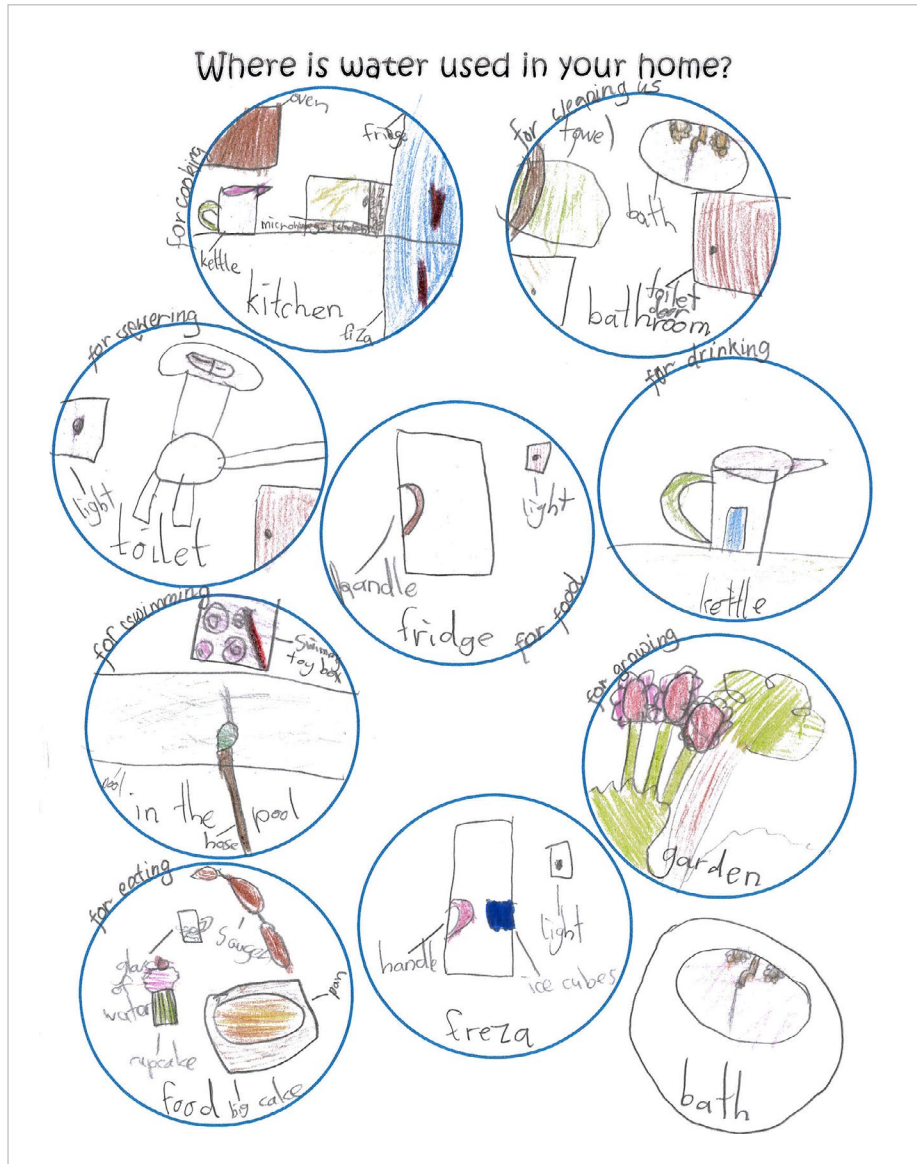
Students were asked to complete a homework task to identify the uses of water at home. They then spent time in class to organise their ideas about water use at home and at school in a graphic organiser. Students spent approximately two hours on the combined elements of the task.

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Investigation: Water at home and at school



Annotations

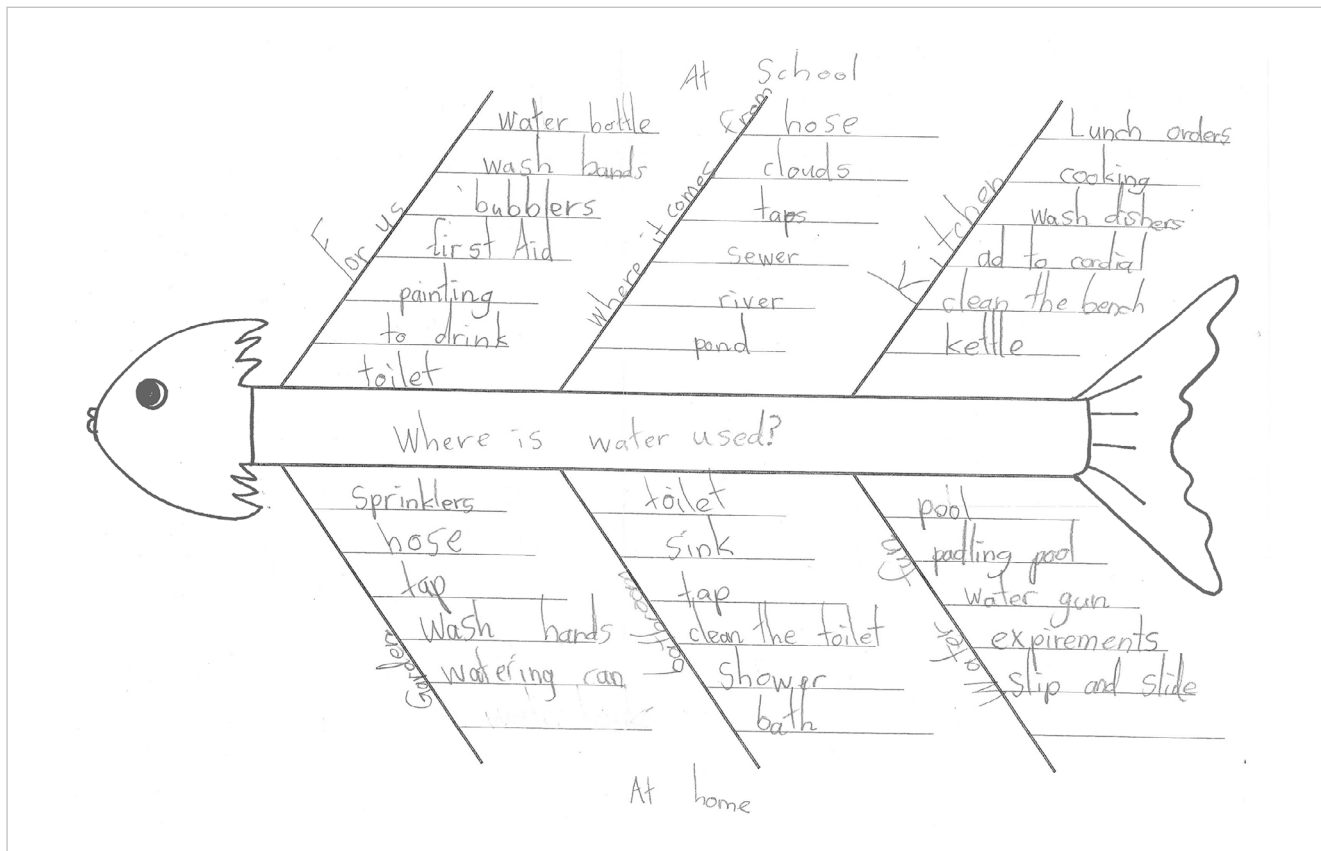
Identifies multiple examples of places in the home where water is found and links the location to the use of the water.

Identifies that water is a component of food.

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Investigation: Water at home and at school



Annotations

Sorts and records observations in provided graphic organiser.

Identifies a diverse range of examples of water sources and usage at home and school, including for growing plants, drinking, cleaning and leisure activities.

Annotations (Overview)

The student communicates ideas through annotated drawings and written text.

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Worksheet: Life stages

Year 2 Science achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

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Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare observations. They follow instructions to record and represent their observations and communicate their ideas to others.

Summary of task

Students had watched some videos, read some books and observed some germinating plants to explore the ways in which living things grow and develop. They had discussed examples of living things, characteristics of their life stages and the language associated with those stages.

Students were given the worksheet following a review of their learning in the unit. The teacher guided students through the instructions and they then completed the task independently over an hour.

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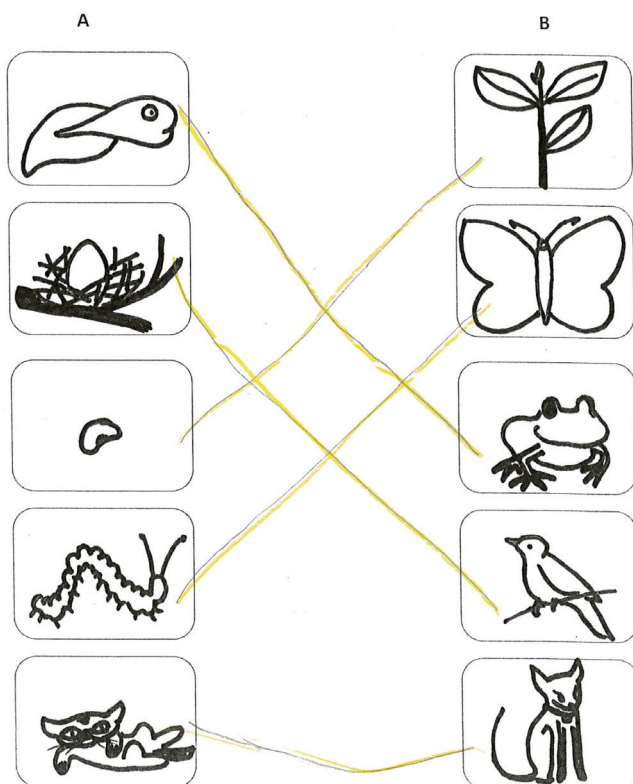
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Worksheet: Life stages

Life stages

Draw lines to match the life stages of these living things:



Choose one picture from column A and explain how it turns into the picture in column B.

1. the caterpillar eats a lot of leaves
2. the caterpillar goes into a cocoon
3. it then hatches from its cocoon
4. it is now a butterfly and it lays ~~more~~ eggs and it starts all over again

Annotations

Links the life stages of a variety of living things.

Describes some life stages of a butterfly, including reproduction and the notion of a life cycle.

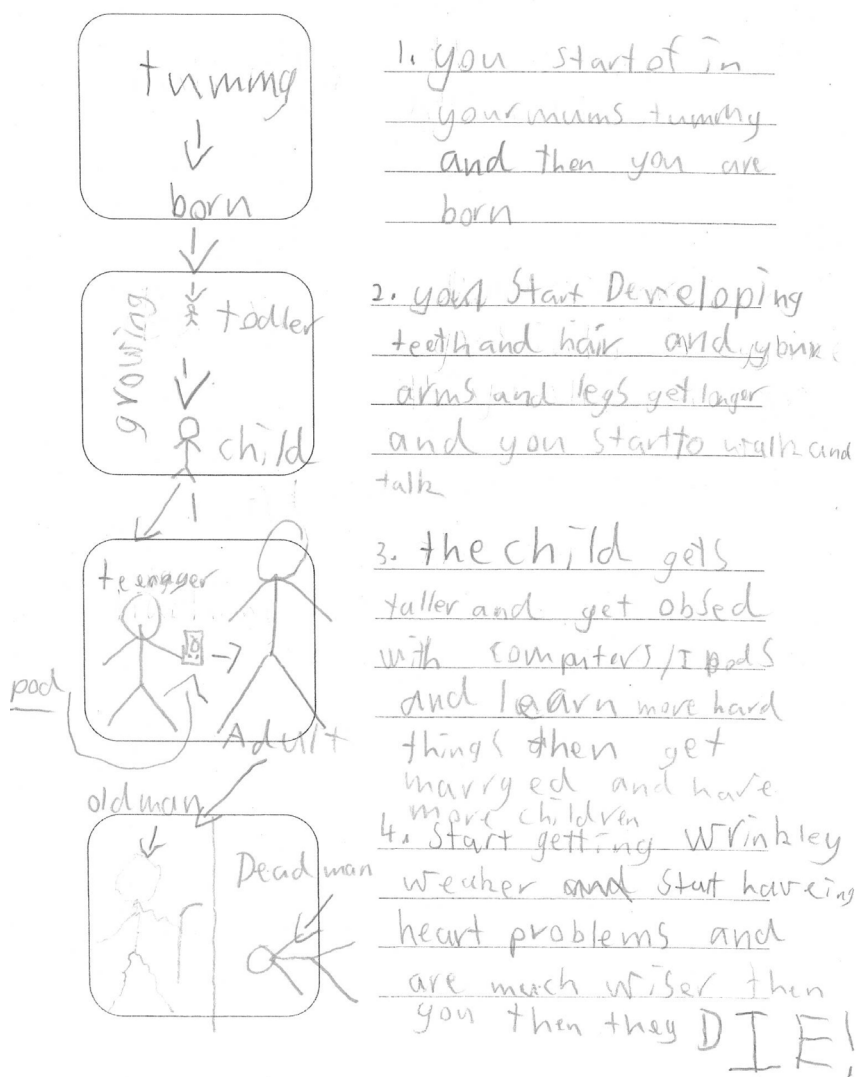
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Worksheet: Life stages

What are the life stages of a human being? Draw and label your life stages



Annotations

Identifies birth as a key stage in human development.

Identifies physical changes associated with life stages.

Identifies having children and death as associated with life stages.

Annotations (Overview)

The student communicates ideas through annotated drawings, use of symbols and written text.

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Worksheet: Science in daily life

Year 2 Science achievement standard

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Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare observations. They follow instructions to record and represent their observations and communicate their ideas to others.

Summary of task

As part of their science investigations, students had discussed examples of where science is used in daily life, including identifying instances in shared reading.

Students were given a task sheet and a pile of magazines. The teacher read through the instructions on the task sheet with the class and reminded them of safety rules for using scissors. Students then completed the task independently over one hour. Following completion of the table, students were asked to write a sentence at the bottom of the sheet answering the question, "What do scientists do?"

Science



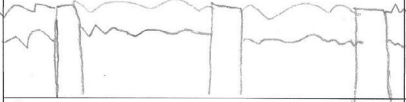

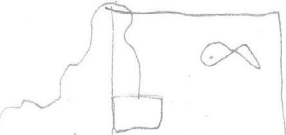
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Worksheet: Science in daily life

Where is the science in my daily life?

- Cut out or draw five pictures to show how we use science in our daily life.
- Write an explanation next to each of your pictures.

1.  kettle	kettle the kettle was made to heat ^{liquids} water to make coffee
2.  clock	clock the clock was made to tell the time to people
3.  power lines	power lines the power line was made to make power travel for
4.  computer	computer the computer was made for over 100 reasons like power, paint, games, ect
5.  fish tank	fish tank the fish tank was made to have a fish as a pet

scientists investigate things they observe then they tell the world so people can change the world.

Annotations

Identifies a variety of ways science is involved in aspects of everyday life, including design of technologies.

Completes a provided table to record ideas.

Identifies that scientists investigate aspects of everyday life, and that their findings can change the world.

Annotations (Overview)

The student communicates ideas through drawing and written text.

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Investigation: Rocky road

Year 2 Science achievement standard

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Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare observations. They follow instructions to record and represent their observations and communicate their ideas to others.

Summary of task

Students had investigated mixing and separating a variety of substances using different methods. They had discussed ways in which mixing substances is part of everyday life.

Students were provided with a range of potential ingredients for rocky road. They observed each ingredient and predicted what it would do when added to the rocky road mixture. They followed instructions to make a basic rocky road recipe and also made a recipe using their own choice of ingredients. They observed the end results and compared their own and others' recipes. They reflected on their predictions and communicated their findings.

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






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Investigation: Rocky road

ROCKY ROAD

Choose 2 extra ingredients to add to the basic recipe.

	PICTURE	INGREDIENTS	DESCRIPTION	PREDICTION
Basic Recipe		Chocolate	Brown, runny, gooey, hot	Will set and hold mixture together
		Marshmallows	Squishy, pink, soft, white, round, sweet, soft	Will make it white and pink.
1. Draw pictures in a cup or on a spoon 2. Choose 2 to add to the basic recipe		Corn Flakes	holey, golden, flakey, crackle, crunchy, yummy.	it will make it a little bit bumpy and golden
		Smarties	colourful, crunchy, chocolatey, round	Will make it crunchy.
		Sultanas	Squishy, brown, gold, crackle, sticky	it will make it lumpy.
		Rice Bubbles	creamy, holey, hard, crunchy, bumpy, crackle	Will make it crunchy and lumpy.
		Coconut	rough, hard, shreddable, edible, tiny bits, white	tiny bits of white.
		Icing Sugar	White, sweet, lumpy, squishy	it will make it taste sweet.
		Water	clear, wet, liquid, wobbly	it will make it soggy.
		Cheese	yellow, flexible, squishy, soft	make it softer, and delicious.

I'm going to add icing sugar smarties
because I want my Rocky Road to be sweet and crunchy.

Annotations

Observes and records observations of each ingredient.

Predicts how different ingredients will affect the properties (texture, taste and colour) of the mixture.

Selects ingredients and predicts how they will affect the properties (taste and texture) of the mixture.

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Investigation: Rocky road

ROCKY ROAD

Draw and label a cross-section of:

The basic recipe	Your recipe	A different recipe combination
 <p>chocolate</p> <p>marshmallows</p>	 <p>chocolate</p> <p>marshmallows</p> <p>smarties</p>	 <p>chocolate</p> <p>coconut</p> <p>marshmallows</p> <p>smarties</p>

How are the mixtures different?

Jake's rocky road is softer than Ruby's rocky road. Ruby's rocky road had a stronger taste because coconut has a stronger texture.

I was a chef when I I mixed the ingredients and tasting the mixer until it was yummy.

I was a scientist when I Was measuring and describing the rocky road.

Annotations

Represents observations using labelled diagrams.

Compares mixtures using informal measurements.

Identifies that science involves observation (measurement and description) and links this to food production

Annotations (Overview)

The student completes a template to record observations and communicate ideas using written text, drawing and diagrams.

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Investigation: Rocky road



Annotations

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Worksheet: Classifying mixtures

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Summary of task

Students were provided with images of a range of mixtures they might find around their home. The class discussed what familiar mixture each image represented. Students were then required to sort the mixtures into two groups and to explain their classification, and to draw and label a familiar mixture and describe its use.

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Worksheet: Classifying mixtures

Group 1

I put these together because ... they are both used for cleaning things

Group 2

I put these together because ... you can eat then and you not get sick.

Draw and label a mixture of your own.

This mixture is used for playing and sculpting

Annotations

Labels mixtures found in the home and identifies their uses.

Groups mixtures according to their uses and their properties (whether they are poisonous if eaten).

Identifies a familiar mixture and provides a detailed representation of the materials in it.

Identifies uses for the chosen mixture

Annotations (Overview)

The student completes a template to communicate ideas using written text and drawing.