

YEAR FOUR SCIENCE TERM 2

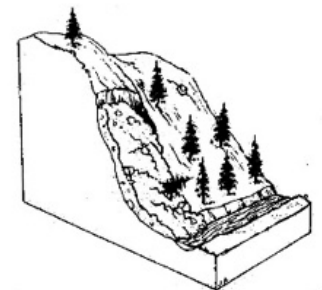
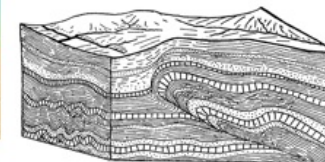


Here today, gone tomorrow!



An Investigation into:

- Natural and human processes that causes weathering and erosion
- Consequences and future impacts upon the earth's surface
- Making predictions about key concepts such as geology, weathering and erosion.



ASSESSMENT TASK: INVESTIGATING SOIL EROSION

TASK

Natural and human processes cause changes to the Earth's surface. In this assessment task you will investigate these processes. There are opportunities in this assessment task for group work and discussion and for individual work.

Follow this eBook and complete the parts as directed.



TASK TIPS

You may like to complete your task responses by typing, using a stylus to write/draw or use a voice recording to clearly explain your ideas and observations.

Remember to use accurate punctuation when typing or writing to ensure your sentences make sense to the reader.

When using a voice recording, think carefully about what you want to say and ensure you speak clearly. Play back your recording to make sure you are happy with your response. You may have to try this a couple of times before you get it right!

Part A: Surface Changes

This section will be completed individually on paper and collected by your teacher for marking.



1. Read the following statements and circle if you agree or disagree with them. Give a reason for your opinion.

a) Weathering can only be caused by water flowing over the rock. Agree/Disagree

Reason

b) Weathering happens really quickly. Agree/Disagree

Reason

c) Erosion only happens in really wet places that have lots of rainfall. Agree/Disagree

Reason

d) Erosion is going to happen and there is nothing people can do about it. Agree/Disagree

Reason

2. Look at the images on assessment task *Investigating soil erosion: Student resource 2 (Erosion examples)* and answer the questions below for each set of images.

a) Identify what the land in each landscape is composed of (e.g. sand, soil, rocks).

(i)

(ii)

(iii)

b) Describe how the surface of each landscape has been changed between the before and after pictures.

(i)

(ii)

(iii)

c) Explain the processes that have caused the changes to each landscape.

(i)

(ii)

(iii)

d) Look at the pictures below and use your knowledge of erosion to predict what you think the surface of this landscape will look like in 10 years if the current practices continue.



10 years ago



present



10 years in the future



e) How could science be used to help prevent and/or minimise the erosion in d) occurring.





Part A: Surface Changes

These images will be viewed when answering questions 2a, 2b and 2c.

Assessment task — Investigating soil erosion: Student resource 2

Erosion examples

Before	After
(i) 	(i) 

(ii) 	(ii) 
(iii) 	(iii) 

Part B: Modelling erosion investigation

Surfaces are affected differently by erosion. You will use the materials provided and listed below to:

- ***construct a model of a landform such as a hill made out of the rocks, pebbles and sand***
- ***model one type of erosion and its effect on a surface containing different particles.***

You may work with a group to carry out the task, but you must work on your own to write or record your prediction and reason, and to record your observations and explanation.

Materials:

- 2/3 rocks
- 15 pebbles
- 1 cup of dry sand
- small bucket
- flat plastic tray
- 1 L water in a jug



PLANNING AND CONDUCTING

1. Method

Outline your method to model erosion below. List the steps you will follow. You may like to draw a diagram to help explain your method.

1. We will layer some rocks at the bottom.
2. Sand will go on top forming a sand dune.
3. Then we will add the rest of the rocks as boulders.
4. Next we will scatter the pebbles around the sand dune.
5. Finally we will pour the water on the sand dune structure.

PLANNING AND CONDUCTING

2. Explain how you will use your materials and equipment safely.

We will use a equipment safely by not throwing rocks or eating the sand.

3. Predict: How will the surface be affected by your erosion method?

The sand will absorb most of the water but some of the water will still impact, pushing the sand down the hill forming a smaller but wider dune, creating erosion.

4. Reason: Give reasons to support your prediction.

The sand will be forced to push away while rocks will break away because they don't have any land to stay on.

OBSERVATIONS

5. Describe what happened to your landform. (include images or video)

The impact of the water forced the sand to tumble down the dune making it small but wide. The rocks fell when the sand fell away because then there was no solid ground for it to sit on.



ANALYSING

Provide final image here...

6. Explain your observations...

This happened because.....

The sand fell away because the impact of the water forced the sand to crumble down the mountain. The rocks fell away because the sand was forced to move so there was no ground for the rock to rest on.

7. Compare your findings with your prediction.

My prediction was partly accurate because I predicted that the sand will absorb most of the water but some of the water will still impact, pushing the sand down the hill forming a smaller but wider dune, creating erosion.

8. Describe how this investigation models erosion in the natural environment.

This investigation models erosion because in a desert on a small sand dune with some pebbles and boulders and then the rain hits, the sand absorbs some but the rain is still falling down on the sand. The sand is forced to flow down the sand dune and then rocks fall because they have no solid land to rest on creating craters in the sand, also blocking water flow. So the water has to go around creating a wider stream.



Year 4 Science: Unit 1 — Here today, gone tomorrow: Investigating soil erosion

Name: _____

Purpose of assessment: To describe the natural processes and human activity that cause changes to Earth's surface. To plan, conduct and report on an investigation of the erosion process. To apply science understandings to formulate control strategies in real-life situations.

Science Understanding	Science as a Human Endeavour	Science Inquiry Skills		
Earth and space sciences	Use and influence of science	Questioning and predicting Planning and conducting	Processing and analysing data and information	Communicating
Discuss how natural processes and human activity cause changes to Earth's surface.	Identify when science is used to understand the effect of actions.	Make a prediction based on prior knowledge. Describe ways to conduct investigations. Safely use equipment to make and record observations with accuracy.	Suggest explanations for observations. Compare findings with predictions	Use formal and informal ways to communicate observations and findings.
PART A		PART B		
Explains erosion process that caused the change to Earth's surface. Gives scientific reasons to support explanations. (Q2c)	Applies science understanding of human impact to ways to solve erosion problems. (Q2e)	Justifies prediction with science understanding. Plans a well sequenced investigation. Records detailed accurate observations. (Q1 – Q5)	Relates investigation to a real-life situation. (Q8)	Uses accurate scientific language and representations.
Gives reasons for change to Earth's surface. (Q2c i, ii or iii)	Describes a strategy that uses science knowledge to prevent erosion. (Q2e)	Plans an investigation to model erosion. (Q1, Q2, Q3, Q4)	Provides scientific explanations for observations. (Q6, Q7)	Uses scientific language.
Discusses natural processes and human activity that caused changes to Earth's surface. (Q2b)	Identifies a situation when science can be used in the formation of an erosion prevention strategy. (Q2e)	Makes a prediction based on prior knowledge. Describes ways to conduct an investigation. Safely uses equipment to make and record accurate observations. (Q1, Q3, Q5)	Suggests explanations for observations. Compares findings with predictions. (Q6, Q7)	Uses formal and informal ways to communicate observations and findings.
Gives a reason for change. (Q1 part)	Identifies a cause of erosion.(Q2d part)	Makes a prediction about change. Follows instructions safely. Makes and records observations. (Q3, Q5)	States a reason for an observation. (Q6)	Uses informal drawings and everyday language.
Identifies a change. (Q1)	Identifies an example of erosion. (Q2d)	Makes a statement about erosion. Works safely. (Q3)	States a reason. (Q4)	Uses fragmented language.
				A
				B
				C
				D
				E