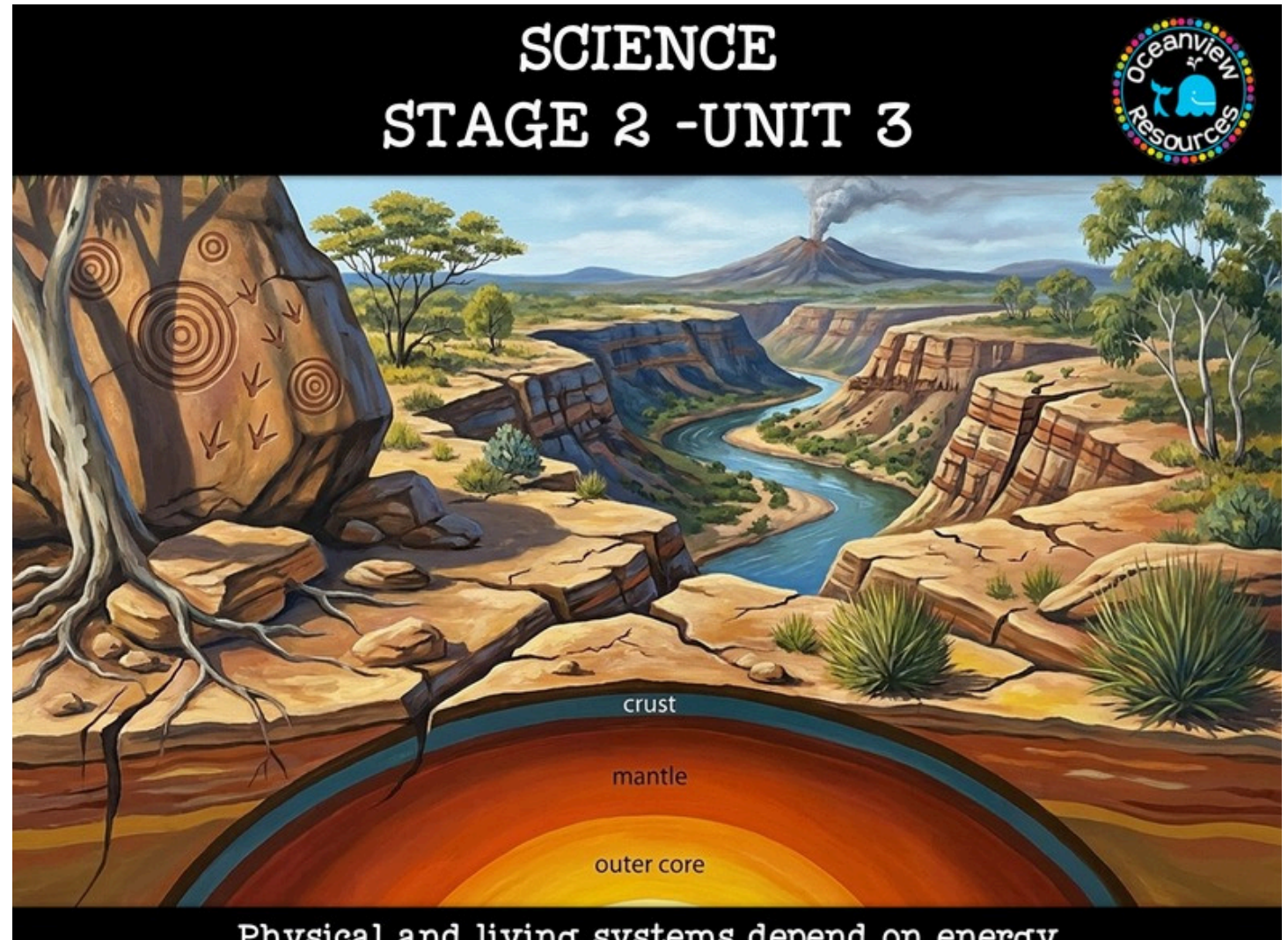


STAGE 2 UNIT 3 SCIENCE

What is included?

- PowerPoint with over 500 slides
- Student workbook and assessment tasks
- PDF for easy printing
- Teaching notes under each slide



ALIGNED TO THE NSW SAMPLE UNITS FOR SCIENCE 2025.

STAGE 2 UNIT 3 SCIENCE

What is included?

- Quick links to units.
- Sections for each lesson included in the PowerPoint presentation.
- Self Assessment tasks.

Table 3 – completed research table

Name of layer	Where is it found?	How thick is it?	What is it made of?	How hot is it?
Crust	At the surface	5–70 km	Solid rock	0–70 degrees Celsius ($^{\circ}\text{C}$)
Mantle	Below the crust, above the outer core	2,900 km	Slow flowing solid rock Scientists are unsure about what the lower part of the mantle is made of	1,400–3,000 degrees Celsius ($^{\circ}\text{C}$)
Outer core	Below the mantle, above the inner core	2,200 km	Liquid iron and nickel	
Inner core	The centre of the Earth	1,200 km	Solid, crystallised metals	

Let's Set Up Our Research Table!

★ Scientists *organise* their information before they begin researching.

Think aloud...

- "Our success criteria say we need to name and describe Earth's internal layers."
- "I'll use a research table to organise my information."
- "Each column heading tells me what information to look for."

My Research Table

Name of layer	Where is it found?	How thick is it?	What is it made of?	How hot is it?

Good scientists *organise* their information before they start researching.

What Did We Learn About Erosion?

Let's think about what we discovered in our investigation and how it connects to the real world.

Discuss these questions with a partner.

- How did our investigation model erosion caused by moving water?
- What did our fair test show about the amount of flowing water and erosion?
- Where might this happen in the real world?
- Tick the places where moving water can cause erosion.
- Today I learned that...

Scientists investigate, observe and explain how forces like moving water shape our Earth!

STAGE 2 UNIT 3 SCIENCE



FAIR TEST



A fair test helps us find out what happens when we change something.

- ? Pose a **question** and make a **prediction**
- C **Change** – only one factor
- M **Measure** – what happens to the other factor
- S **Same** – keep everything else the same

Remember:

Cows
Moo
Softly



Moo!

Steps to a fair test

1. Ask a question and make a prediction.
2. **Change** – only one factor.
3. **Measure** – what happens to the other factor.
4. **Same** – keep everything else the same.

Lesson 7: 1-3

Erosion Caused by Water

weathering

Weathering refers to the breakdown of rocks into smaller particles. It can be caused by forces produced by wind, water and living things.

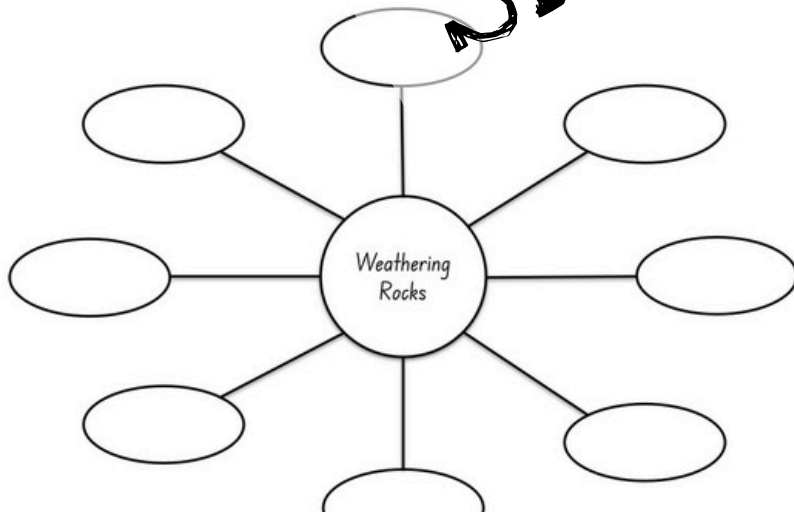
erosion

Erosion means the process by which soil, rocks and other surface materials are carried away, by the actions of water, wind or ice. **Erosion** refers to the process by which soil, rocks and other surface materials are carried away, by the actions of water, wind or ice. Add 'erosion' to the vocabulary anchor chart.

After weathering occurs, erosion is the next step in the creation and shaping of landforms and landscapes.



Weathering Rocks



TASK CARD

SCAVENGER HUNT

Finding Evidence of Weathering by Plants

★ Plants can push on rocks and slowly break them apart over a very long time.

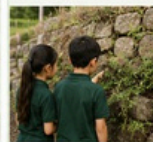
What you need:

- Magnifying glass
- Digital device with camera (if available)
- Clipboard (optional)

- 1 Work in pairs or groups.



- 2 Go outside to places where plants are growing on or in rocks.



- 3 Look carefully! Find plants growing in cracks or on rocks. Take photos.



- 4 Choose one example where a plant is growing in a crack. Look closely.

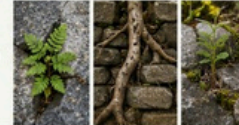


The roots push on the rock. This is a push force.

- 5 What might happen in the long term? The rock may crack more and break into smaller pieces.



- 6 Complete your scavenger hunt. Find and record as many examples of weathering by plants as you can!



- 7 Share your examples with the class. Add a few of your examples to our 'Weathering rocks' concept map.

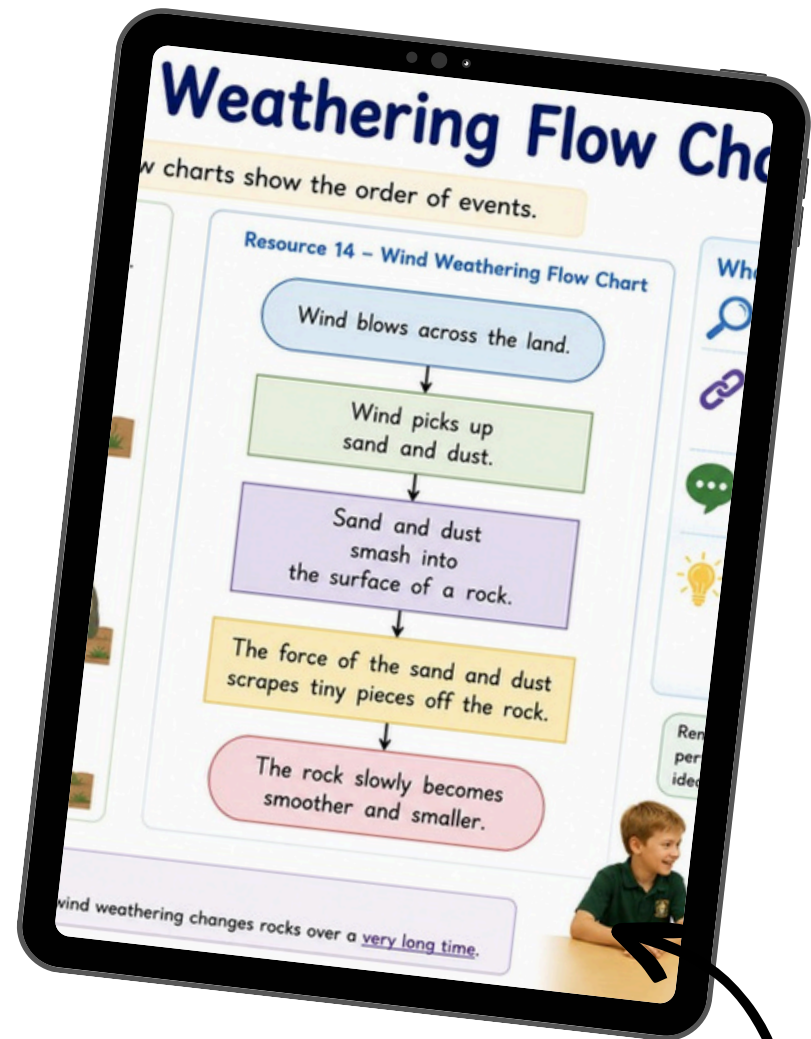


How you can use it:

All lessons are planned to be 60 minutes long.

There are 16 weeks of units plus 4 additional extension units.

20 hours of teaching time



This unit aligns with the new NSW syllabus documents.

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STAGE 2 UNIT 3 SCIENCE

Lesson 5: 11-17

Weathering by Wind and Water

Watch Why are river pebbles round? (4:10) (from 0:00-2:10)



Stop at 2:10 to explain that in this model:

- the sugar cubes represent rocks
- the container represents the river
- the shaking represents the force of the water weathering the rocks.



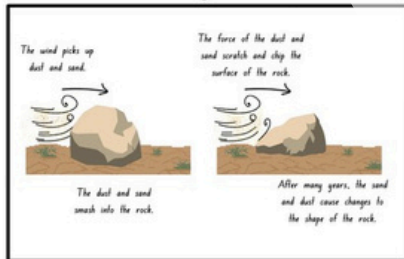
Group Task

Refer to teaching notes below the slide.

Lesson 5: 18-19

Weathering by Wind and Water

Wind Weathering Annotations



The purpose of those annotations is to describe the process of weathering caused by wind..



Model at least one annotation, explaining what details you have included and why.

Water Weathering Annotations

Let's add labels and notes to show how water weathering changes rocks.

Model annotation: I will label one part and explain why I added it.

Before weathering **Water weathering** **After weathering**

I labelled the grains because they are tightly packed together.

Clear container to represent a river or stream.

Moving water applies a force on the sugar cube that can break it apart.

I labelled the broken grains and rounded corners because water wore them away.

★ Sugar grains have broken off the cubes.
★ The shape of the sugar cube has changed.
★ The corners are no longer sharp.

★ Remember: Water moves and rubs against rocks. Over a long time, it can change their shape.

Your turn!
Add labels, notes and a sketch to show how water weathering works.

Think and answer:
What changed? Why did it change? How did the water cause this to happen?

My sketch

My sketch

Lesson 5: 9-10

Weathering by Wind and Water

Watch Transportation of sediment in a river (0:21)



The force of the water can pick up and carry small rocks, and the rocks bump into each other as they move.

Notice the smooth shapes of the larger rocks.

A scientific model is a drawing, diagram, object or explanation that helps to show how something in science works. Scientists use models to help explain ideas, understand processes and share their thinking with others.

STAGE 2 UNIT 3 SCIENCE

Wind Can Change Rocks

Look carefully at these rocks.



Turn and Talk

- What do you notice?
- What do these rocks have in common?
- How do you think the wind changed these rocks?

Think!
How is this like our Scratch Test?



In our Scratch Test, we rubbed a coin on the rock. Wind and sand rub rocks in nature, but it takes a very long time!

Did you know?

Wind can carry tiny pieces of sand.
↓
The sand rubs against the rock.
↓
Over a very long time, the rock changes shape.

★ When wind slowly changes rocks over a long time, scientists call this **weathering**.

Lesson 5: 1-5

Weathering by Wind and Water

Duration: 40 minutes

Weathering refers to 'the breakdown of rocks into smaller pieces that can be caused by forces produced by wind, water and living things'.

Both wind and water carry small items like sand, dust and dirt. Combined with the push forces of moving water and wind, the continual rubbing of particles can weather rocks. The process takes a long time; the duration depends on the hardness of different rocks.

- What details or features do you notice?
- What do you think these landforms have in common?
- What questions do you have?



These natural features are sculpted by the wind.

Lesson 5: 8

Weathering by Wind and Water

- where the water is in contact with the rock
- the force produced by moving water (such as waves and falling water)
- how the force of the water has shaped the rocks (for example, waves cutting away at the base of a coastal cliff or flowing under boulders, tiny pieces of rock as it moves over it)
- that rocks have formed different shapes depending on the force of the water and the hardness of the rock.



Name: _____

Date: _____

Self Assessment

I can recognise that rain can be measured.

I can observe and record rainfall using a rain gauge.

I can label a diagram of a rain gauge.

Rock Hardness Investigation

Look at the photographs of our rock hardness test. Add annotations to explain what you discovered about rock hardness.

Soft Rocks	Medium Rocks	Hard Rocks	Very Hard Rocks
These rocks:	These rocks:	These rocks:	These rocks:
What did you notice?	What did you notice?	What did you notice?	What did you notice?
What did we learn about rock hardness?	What did we learn about rock hardness?	What did we learn about rock hardness?	What did we learn about rock hardness?
Scientist's Vocabulary	Scientist's Vocabulary	Scientist's Vocabulary	Scientist's Vocabulary
soft	medium	hard	very hard
easy	difficult	very difficult	impossible
scratch	scratch	scratch	scratch



Rate how you felt about this activity.

STAGE 2 UNIT 3 SCIENCE

Rock Hardness Investigation

Look at the photograph of our rock hardness sort.
Add annotations to explain what you discovered about rock hardness.

Name: _____

Soft Rocks
These rocks...

Hard Rocks
These rocks...

Medium Rocks
These rocks...

Very Hard Rocks
(Could not be scratched with our tools)
These rocks...

What did you notice?

What did we learn about rock hardness?

Scientific Vocabulary
Tick the words you used.

☐ soft

☐ fingernail

☐ medium

☐ coin

☐ hard

☐ metal file

☐ scratch

☐ hardness

The Scratch Test

How hard is the rock?

- 1 Organise into small groups.
- 2 Try scratching with your fingernail.
If it scratches, place it with the 'soft' label.
- 3 Try scratching with a coin.
If it scratches, place it with the 'medium' label.
- 4 Try scratching with a metal file or iron nail.
If it scratches, place it with the 'hard' label.

Discuss: What about the rocks that could not be scratched?

Fingernail: Can a fingernail scratch it?
If yes, place it with 'soft'.

Coin: Can a coin scratch it?
If yes, place it with 'medium'.

Metal file or iron nail: Can a metal file or iron nail scratch it?
If yes, place it with 'hard'.

Rock Hardness Sort
Our results

Rocks can be soft, medium, hard or too hard to scratch!



Force: water in a crack
expanding when it freezes.

Force: water in a crack freezes and
expands, pushing the rock apart.



Force: water falling onto
rocks.

Falling water hits rocks with strong
force and can break small pieces off.



Force: waves crashing
into rocks.

Strong waves hit the rocks again and
again, causing cracks and pieces to
break away.

0:15

Landform:
Murrumbidgee
River

0:46

The Goanna men
decided not to
share the
Murrumbidgee
River.

0:54

They stored the
Murrumbidgee
River in the
mountains of
Tumut.

1:11

The Goanna women
had a corroboree
and decided to tell
the Goanna men to
let the water go,
but they were
too scared.

1:35

Balana, a
Goanna girl,
said she
would go.

2:17

Special People,
who lived in caves
at Bethungra,
decided to help
Balana.

2:32

The Special People
helped Balana
sneak past the
Goanna men.

2:37

Balana stuck a
stick into the side
of the mountain
and out flowed
the water.

2:45

The Goanna men
chased Balana.

2:50

Balana ran into
the caves at
Bethungra where
the Special People
could protect her.

2:57

The Goanna men
had a corroboree.
The Goanna women
had their own
corroboree.

3:07

The Goanna men
realised that Balana
was protected by
Special People, and
that Goanna women
were very angry at
them.

3:15

The Goanna men
decided to change
from patriarchal
to matriarchal.

STAGE 2 UNIT 3 SCIENCE

Let's Shape Clay!



- 1** You have modelling clay!
 Let's get creative!
- 2** Roll it out flat.
- 3** Trace a shape.
 Here, 'shape' is a noun.
 
 shape (noun)
 The word 'shape' can be a noun or a verb!
- 4** Shape the clay into landforms. Here, 'shape' is a verb.
  Shape the clay into a mountain.
  Shape the clay into a cave.
  Shape the clay into a hill.
  Shape the clay into a sea stack.

 You can shape clay into many different landforms. Be creative and have fun!

Lesson 3: 8-11

Aboriginal Dreaming Stories

Success Criteria

Students are learning:

- ✓ about the shaping of Earth's surface
- ✓ to create written explanations that support scientific understanding

Students can:

- ✓ describe an Aboriginal Dreaming Story about the formation of a landform or landscape
- ✓ use notes to explain how the Dreaming Story describes the shaping of the landform.

Taking notes means writing short sentences or key words to help remember facts.

This begins with thinking about the facts needed. there are many different ways to take notes.

One way is to write key facts on a sticky note, then organise the facts into groups.

Lesson 2: 18

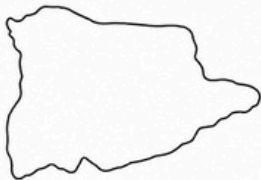
Torres Strait Islander Legends

Mer Island: Before and After the Legend

Create annotated diagrams of the landscape around Mer Island before and after the legend. Include annotations to label the landforms the Legend explains the formation of.

BEFORE THE LEGEND

Mer Island was flat. Mer Island was by itself.



Annotations - What landforms are in this landscape?

AFTER THE LEGEND

Gelam turned into a big hill. Gelam spat out 2 seeds and they became islands.



Annotations - What landforms are in this landscape now?

VOCABULARY

Landscape - a large area of land that includes many landforms.
 Landform - a natural feature of the Earth's surface.

The Legend of Gelam

Landforms, Landscapes and Special Places

Torres Strait Islander Peoples have many Legends that have been told for thousands of years.

Let's remember the Legend...

- ★ Gelam, a boy, swam to Mer Island with a dugong.
- ★ Gelam turned into a big hill on Mer Island.
- ★ Gelam spat out two seeds and they became two smaller islands.



Key vocabulary

Formation - the act or process of forming.
 Landform - a natural feature of the Earth's surface.
 Landscape - a large area of land that includes many landforms.

Your task

- 1 Use your whiteboard to draw a diagram of the landforms the Legend of Gelam describes.
- 2 Label the landforms.
- 3 Be ready to share and explain your diagram.

Example



Think and discuss...

- What does 'formation' mean?
- What is the Torres Strait Islander Legend that describes the formation of landforms at Mer Island?
- What animal did Gelam travel to Mer Island in?
- What landforms at Mer Island does the Legend of Gelam describe the formation of?

Success criteria

- ✓ I can draw the landforms from the Legend of Gelam.
- ✓ I can label the landforms.
- ✓ I can explain how the Legend describes their formation.

STAGE 2 UNIT 3 SCIENCE

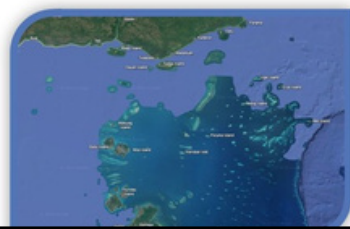
What is included?

- Video links
- Created for use with the IWB.
- Suggested teaching prep for each lesson.
- Outcomes and indicators included for each lesson.

Lesson 2: 8-9 Torres Strait Islander Legends

Locate the Torres Strait Islands on the satellite image. **For example**, the Torres Strait Islands are a group of small islands near the northern tip of Queensland. They lie in the water between the Cape York Peninsula and Papua New Guinea.

Zoom in to locate Moa Island and Mier



Lesson 2: 7 Torres Strait Islander Legends

Display the webpage, Dugong and enlarge the images.

A dugong is a large marine mammal found in the Torres Strait.



LANDSCAPES OR LANDFORMS?

Look at each image. Decide if it is a **LANDSCAPE** or a **LANDFORM**. Place it in the correct hoop.

LANDSCAPES

Large areas with many landforms.

LANDFORMS

One natural feature of the Earth.

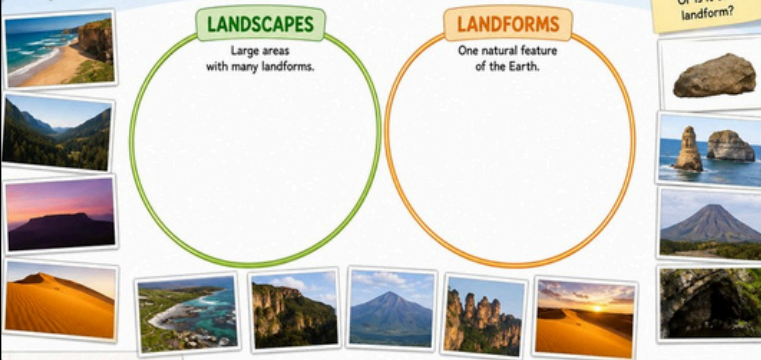
Think: Is it a large area with many landforms? Or is it one landform?

Vocabulary

Landscape - a large area of land that includes many landforms.

Landform - a natural feature of the Earth's surface.

Remember: Landscapes have many landforms. Landforms are parts of landscapes.



Teaching Notes

Lesson 1:10

Landscapes and Landforms

Watch Landscape types (4:30) (from 1:09-1:46).



Identify new vocabulary.

Vocabulary	Definition
Sand dunes	A sand hill or sand ridge formed by the wind, usually in desert regions or near lakes and oceans.
Mesa	A landform having a relatively flat top and bounded wholly or in part with steep rock walls ...
Summit	The highest point or part, as of a hill ...

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