

# Daily Review

## Physical and chemical properties

**Chemical properties** are determined by **changing** the identity of the substance.

**Physical properties** are determined **without changing** the identity of the substance.

- Create the following table on your whiteboard:

Chemical Property	Physical Property

- Classify the following properties as chemical or physical.

Colour	Shape	Melting point
Reaction with acid	Density	Reaction with air

## Extrusive Igneous Rocks

- Extrusive igneous rocks form on the surface of the Earth
- Some igneous rocks have holes formed by volcanic gases escaping from the lava

Pumice and obsidian are both extrusive igneous rocks.

Identify two differences between these rocks.

Which one has been formed from gaseous lava? Explain your answer.



Pumice



Obsidian

# Daily Review

## Sedimentary Rocks

### Types of Sedimentary Rocks

- **Clastic** sedimentary rocks are made from rock and mineral grains
- **Biological** sedimentary rocks are made from dead plant or animal material
- **Chemical** sedimentary rocks are made when water evaporates leaving a solid substance behind

Gypsum is a sedimentary rock that forms in the bottom of lagoons where sea water slowly evaporates.

What type of sedimentary rock is gypsum? Explain your choice.



# Daily Review

## Types of Metamorphic Rocks

- **Foliated** metamorphic have banded layers
- **Non-foliated** metamorphic rocks are uniform in colour

Gniess is a metamorphic rock. Is it foliated metamorphic or non-foliated metamorphic?  
Explain your choice



### Identifying Metamorphic Rocks

1. Uniform colour = **non-foliated metamorphic**
2. Bands or layers = **foliated metamorphic rock**

# Weathering and Erosion

# Learning Objective

1. Define weathering and erosion
2. Identify the different types of weathering

CFU

What are we going to learn?

## Activate Prior Knowledge

Think, Pair, Share: Large storms can cause damage to coastal areas. Explain to the person next to you, what do you think has happened in the picture below.



# Concept Development

Weathering is the breaking down of rocks and minerals. Rocks do not last forever because weathering breaks them into smaller pieces.

## Physical weathering

Physical weathering occurs when a physical force breaks down a rock.

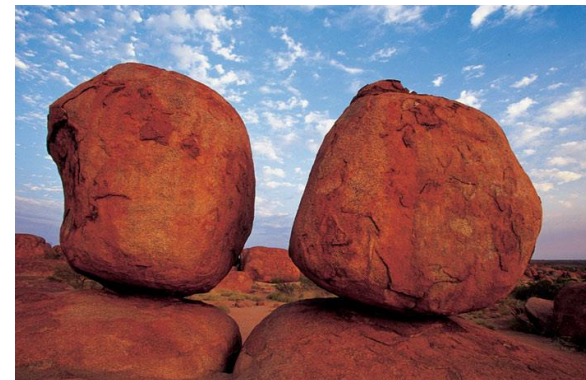
It includes the breaking down of rocks by non-living things.

### CFU 1

What is weathering?

### CFU 2

What causes rocks to break down in physical weathering?





# Concept Development

Weathering is the breaking down of rocks and minerals

## Physical weathering

There are many ways that physical weathering can occur.

- The heating and cooling of rocks can cause the outside layers to peel off
- Moving water in oceans or rivers can cause the abrasion of rocks
- Water falling between the cracks in rocks and freezing can cause the cracks within rocks to become larger. Repeated freezing can eventually cause parts of the rock to split off.

### CFU 1

How can physical weathering occur?

### CFU 2

How can water cause physical weathering?

### CFU 3

Which example of physical weathering would explain the cracks in the rock below?



### Vocabulary

Abrasion: scraping or wearing away



# Concept Development

Weathering is the breaking down of rocks and minerals

## Chemical weathering

- Chemical weathering changes the minerals in the rocks
- Carbon dioxide in the air can mix with water to form a very weak acid rain
- When the acid rain falls on rocks a chemical reaction occurs and the minerals are washed away.

### CFU 1

How does chemical weathering occur?

### CFU 2

How is physical weathering different to chemical weathering?



# Concept Development

Weathering is the breaking down of rocks and minerals

## Biological weathering

- Biological weathering occurs when living things break down rocks eg., tree roots, rabbit burrows and microbes.



### CFU 1

How is biological weathering different to physical weathering?

### CFU 2

A seed blows into a crack in a rock. As it grows the crack in the rock gets bigger. Is this biological weathering? Explain why or why not.

### Vocabulary

Microbes: a microscopic organism such as bacteria

# Concept Development

## Erosion

Erosion is the movement of sediment from one area to another.

Small particles of rocks that have been broken down by weathering are carried away by water, wind and ice.



### CFU 1

What is erosion?

### CFU 2

How is erosion different to weathering?

### CFU 3

When walking to beach through the sand dunes it is recommended that you stick to the path. Why must we do this?

### Vocabulary

Sediment: rock particles



# Skill Development/Guided Practice

## Identifying Types of Weathering

1. The weathering is caused by a living thing = **biological weathering**
2. The weathering is caused by non-living things
  - a) Chemicals cause weathering = **chemical weathering**
  - b) Water and wind cause weathering = **physical weathering**



All this rain is wearing me down...

The statue is breaking down due to chemical weathering. A weak acid rain has caused the limestone to break down.

### CFU 1

Is the weathering caused by living things?

### CFU 2

Are there chemicals causing the weathering?

### CFU 3

What type of weathering has occurred?

### Vocabulary

Weathering: the breaking down of a rock into smaller pieces

# Skill Development/Guided Practice

## Identifying Types of Weathering

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These rocks are being broken down through physical weathering. The ocean is causing the rocks to break down into smaller pieces.

### CFU 1

Is the weathering caused by living things?

### CFU 2

Are there chemicals causing the weathering?

### CFU 3

What type of weathering has occurred?

**Fun fact: the 12 apostles are famous limestone pillars found off the coast of Victoria. Only 8 remain!**

### Vocabulary

Weathering: the breaking down of a rock into smaller pieces

# Skill Development/Guided Practice

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This rock has been broken down through biological weathering. A tree is growing and the roots are causing the rock to crack.

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Is the weathering caused by living things?

### CFU 2

Are there chemicals causing the weathering?

### CFU 3

What type of weathering has occurred?

### Vocabulary

Weathering: the breaking down of a rock into smaller pieces



# Skill Development/Guided Practice

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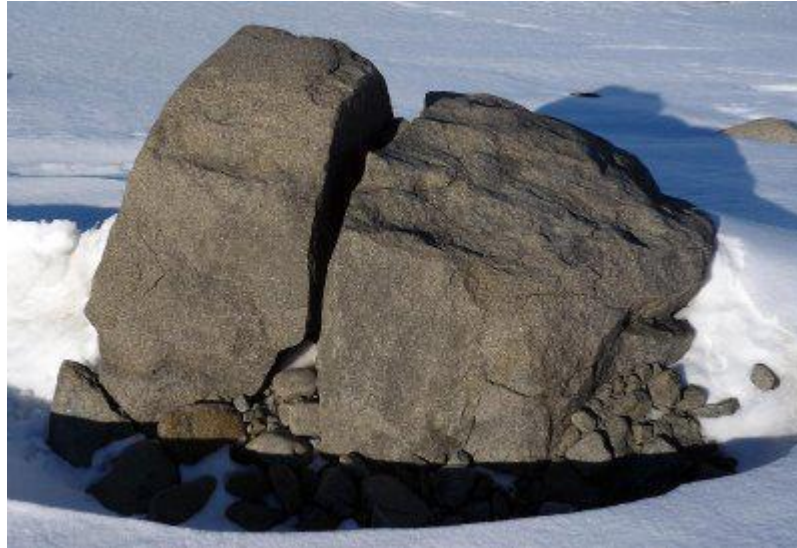
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# Skill Development/Guided Practice

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### Vocabulary

Weathering: the breaking down of a rock into smaller pieces

## Relevance

Understanding the impact weathering has on rocks can affect their use.

Understanding the different types of weathering can help to explain the formation of natural land marks.

## Skill Closure

Explain the difference between weathering and erosion.

## Skill Closure

Natures window in Kalbarri was formed in ancient times by waves moving around in shallow seas. What type of weathering is this? Explain your choice.



## Skill Closure

When hilly areas are excavated, workers sometimes cover the ground with a spray on paper like material. Why might they do this?

## Independent Practice

In your book or on your device complete the table below.

	Definition	Example	Diagram
Physical Weathering			
Chemical Weathering			
Biological Weathering			
Erosion			

**Challenge:** Find an area near Harrisdale Senior High School that has been affected by erosion.

Suggest a way you could prevent further erosion.

Hint: Look at page 33 in the text book.