Our
Learning
Community

UPPER PRIMARY

Beginner Science

E-Booklet

Part 2

Homogeneous and Heterogeneous

Upper Primary Beginner Science

Homogeneous - mixture looks the same all over. You cannot see the different parts because everything is spread out evenly.
Heterogeneous - mixture does not look the same all over. You can see the different parts or pieces because they are not mixed evenly.

Circle the correct answer as shown in the picture.

saltwater

Homogeneous Heterogeneous

air

Homogeneous Heterogeneous

chocolate chip cookie

Homogeneous Heterogeneous

chicken noodle soup

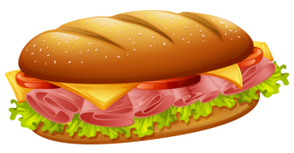
Homogeneous Heterogeneous

pizza

Homogeneous Heterogeneous

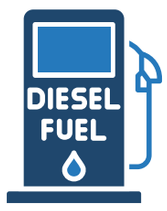
perfume

Homogeneous Heterogeneous



sandwich

Homogeneous Heterogeneous



diesel

Homogeneous Heterogeneous

soil

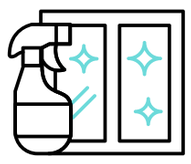
Homogeneous Heterogeneous

salad

Homogeneous Heterogeneous

liquid soap

Homogeneous Heterogeneous



window cleaner spray

Homogeneous Heterogeneous

vinegar

Homogeneous Heterogeneous

wine

Homogeneous Heterogeneous

bowl of cereal with milk

Homogeneous Heterogeneous

Homogeneous and Heterogeneous - Solutions

Upper Primary Beginner Science

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saltwater

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Homogeneous **Heterogeneous**

chicken noodle soup

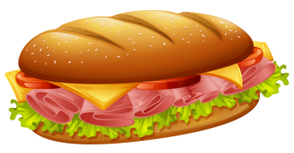
Homogeneous **Heterogeneous**

pizza

Homogeneous **Heterogeneous**

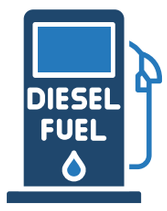
perfume

Homogeneous Heterogeneous



sandwich

Homogeneous **Heterogeneous**



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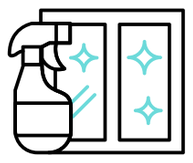

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Homogeneous Heterogeneous

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bowl of cereal with milk

Homogeneous **Heterogeneous**

Structure of Earth

Upper Primary Beginner Science

EARTH

GEOSPHERE

HYDROSPHERE

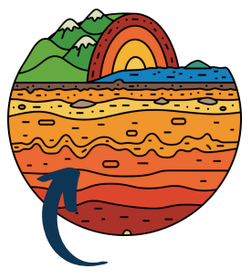
ATMOSPHERE

CRUST

MANTLE

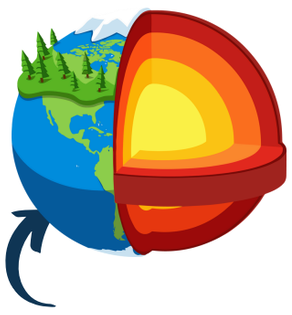
OUTER CORE

INNER CORE



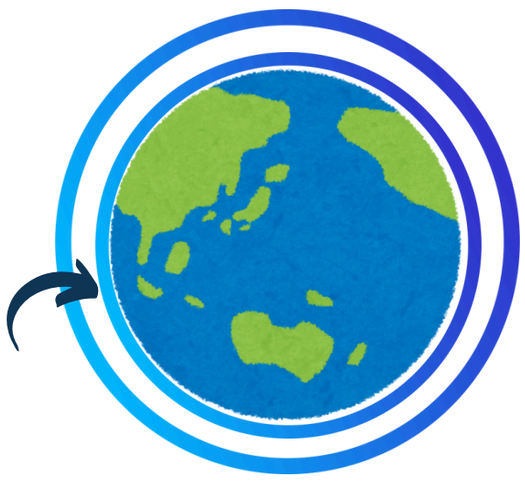
GEOSPHERE

The **Geosphere** includes all the solid parts of Earth, such as rocks, mountains, soil, and the core deep inside. It forms the land where we live and changes slowly through processes like volcanoes and earthquakes.



HYDROSPHERE

The **Hydrosphere** contains all the water on Earth, including oceans, rivers, lakes & ice caps. Water moves in a cycle of evaporation, rain, and rivers, shaping the land and providing life for plants and animals



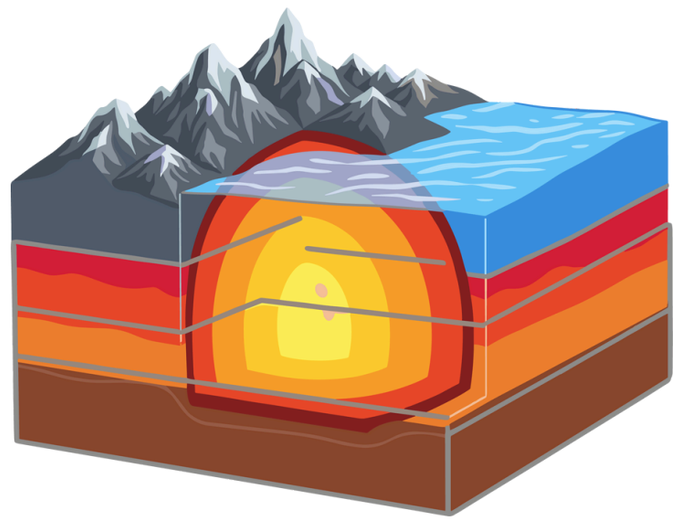
ATMOSPHERE

The atmosphere is the layer of gases surrounding Earth, mainly nitrogen and oxygen, which we breathe. It protects us from the sun's harmful UV rays, creates weather like rain and wind, and keeps our planet warm enough for life.

Structure of Earth

Upper Primary Beginner Science

Answer the following questions.



Questions:

1 What is the Geosphere?

a) All the water on Earth

b) The solid parts of Earth like rocks and soil

c) The air we breathe

d) Plants and animals

2 Name the four main layers of Earth's geosphere from outside to inside.

---

3 The hydrosphere includes oceans, rivers, lakes, and ice, but not groundwater underground. Circle : True or False

4 Which layer of the Geosphere is a thin, rocky outer skin where we live?

a) Mantle

b) Crust

c) Outer core

d) Inner core

5 What gases make up most of the atmosphere? Give two examples.

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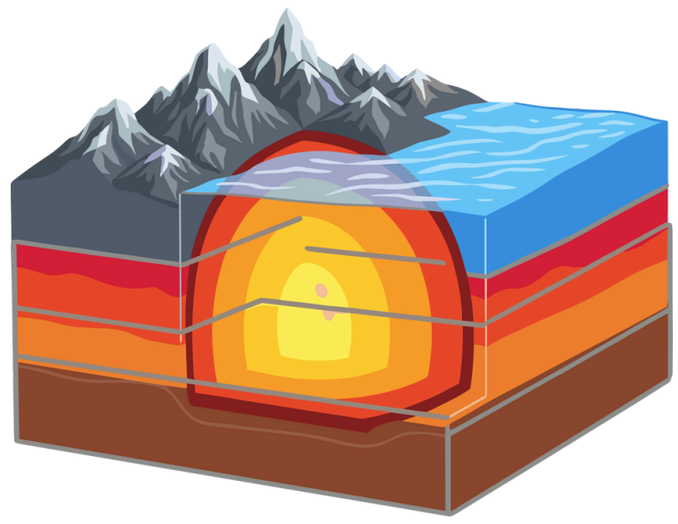
6. The mantle is the hottest layer of Earth and is made of molten rock that flows slowly. Circle : True or False

7. Fill in the Blank: The atmosphere protects Earth from harmful _____ rays and helps create _____ like rain and wind.

Structure of Earth - Solutions

Upper Primary Beginner Science

Answer the following questions.



Questions:

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a) All the water on Earth

b) The solid parts of Earth like rocks and soil

c) The air we breathe

d) Plants and animals

2 Name the four main layers of Earth's geosphere from outside to inside.

Crust, mantle, outer core, inner core

3 The hydrosphere includes oceans, rivers, lakes, and ice, but not groundwater underground. Circle : True or False

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Nitrogen & Oxygen

6. The mantle is the hottest layer of Earth and is made of molten rock that flows slowly. Circle : True or False

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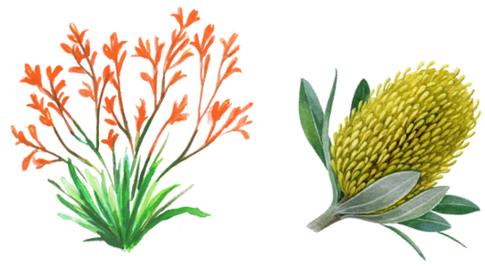
Australian Plant Adaptations

Upper Primary Beginner Science

Australian Plant Adaptations



Australia is home to some of the world's toughest environments, including vast deserts, sandy soils with few nutrients, and bushlands where wildfires rage regularly. Plants here have evolved amazing adaptations over thousands of years to cope with drought, heat, poor soil, and fire. For example, Eucalyptus trees, also called gum trees, are icons of the Australian bush. Their leaves are long, narrow, and hang vertically like pendants, which minimizes exposure to the blazing sun and cuts down water loss through transpiration. These trees also grow deep taproots that plunge far into the ground to tap into underground water sources, even during long dry spells.

In sandy, phosphorus-poor soils common across much of Australia, plants like Banksia and Grevillea form special cluster roots. These roots release chemicals into the soil to unlock tiny amounts of phosphorus, allowing the plants to absorb this vital nutrient that other plants can't access easily. Kangaroo Paw, with its furry leaves and striking flowers, stores water in thickened tissues and has leaves covered in fine hairs that trap moist air and shade the plant from intense sunlight.

Bushfires are a natural part of Australia's landscape, and many plants are perfectly adapted to them. Acacia trees, or wattles, have hard seed coats that only crack open after intense heat or when triggered by smoke chemicals in the ash, ensuring seeds germinate right after a fire clears the land for new growth. Desert shrubs like Mulga have small, grey-green leaves coated in wax and tiny hairs. The wax reflects harsh sunlight, while the hairs create a still layer of air that reduces evaporation and keeps the plant cooler. Some plants, such as grass trees, even store nutrients in swollen stems to fuel rapid regrowth after fires. These clever strategies turn Australia's challenges into opportunities, making its plants tough survivors

Adapted from: Australian Environment Education

Australian Plant Adaptations

Upper Primary Beginner Science

Questions:

1 How do deep taproots benefit Eucalyptus trees in dry conditions?

2 What role do chemicals from cluster roots play for Grevillea?

3 Explain two ways bushfires aid plant regeneration like in grass trees.

4 Describe the adaptations of desert plants like Mulga for extreme heat.

5 Why are these plant features essential for life in Australia's varied habitats?

6 Compare the water-conserving adaptations of Eucalyptus trees and Mulga shrubs, explaining which might suit a desert environment better and why.

Australian Plant Adaptations - Solutions

Upper Primary Beginner Science

Questions:

1 How do deep taproots benefit Eucalyptus trees in dry conditions?

Deep taproots benefit Eucalyptus trees by reaching underground water sources during long dry spells.

2 What role do chemicals from cluster roots play for Grevillea?

Chemicals from cluster roots of Grevillea unlock tiny amounts of phosphorus in sandy, nutrient-poor soils.

3 Explain two ways bushfires aid plant regeneration like in grass trees.

Bushfires crack hard seed coats on Acacia for germination, while grass trees use stored stem nutrients for rapid regrowth

4 Describe the adaptations of desert plants like Mulga for extreme heat.

Mulga has small, grey-green leaves with waxy coatings that reflect harsh sunlight and tiny hairs that reduce evaporation and keep the plant cooler.

5 Why are these plant features essential for life in Australia's varied habitats?

These features like deep roots, cluster roots, fire cues, and waxy hairs help plants conserve water, access nutrients, and regenerate in Australia's deserts, poor soils, and fire-prone bushlands.

6 Compare the water-conserving adaptations of Eucalyptus trees and Mulga shrubs, explaining which might suit a desert environment better and why.

Eucalyptus trees use vertically hanging, narrow leaves to minimize sun exposure and deep taproots for underground water, while Mulga shrubs have waxy, hairy leaves that reflect sunlight and trap moist air; Mulga suits deserts better due to its surface-level features for extreme heat and low rainfall without relying on deep water.

Vertebrate & Invertebrate

Upper Primary Beginner Science

Vertebrates are animals that have a backbone inside their body, like a strong spine that helps them stand tall and protect their nerves. **Invertebrates** are animals without any backbone - they're super flexible and make up most of the animals on Earth.

Circle whether the the animals are Vertebrates or Invertebrates

vertebrate

invertebrate

vertebrate

invertebrate

vertebrate

invertebrate

vertebrate

invertebrate

vertebrate

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vertebrate

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Vertebrate & Invertebrate - Solutions

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