

Exercise walk-through

1.2

Terrestrial Biomes

AP Environmental Science

Biomes

A **biome** is a large region set by its climate: terrestrial by temperature & precipitation; aquatic by salinity.

Biomes band by latitude:
rainforest at the equator →
tundra at the poles.



Tropical rainforest: high temp and precip

Two biomes at opposite ends of the precipitation scale

Tropical rainforest

Hot and wet all year: dense layered plant life and the richest biodiversity of any land biome.

Desert

The dry end: sparse, widely spaced plants, water-storing tissue and animals active at night.

Why they differ

Terrestrial biomes are set mainly by temperature and **precipitation** – the same sunlight, a different water budget.

Deserts, grasslands, tropical rainforest, temperate forest, taiga and tundra: place any of them by naming its temperature *and* its rainfall.

Aquatic biomes cover more of Earth than land does

freshwater

streams, lakes, wetlands – low **salinity**

marine

open ocean, coral reefs, estuaries – high salinity

estuary

where a river meets the sea; nutrient-rich and **exceptionally productive**

coral reef

warm, shallow, sunlit – the most **biodiverse** system

marine

Aquatic biomes are sorted by **salinity, sunlight and nutrients** – the same three variables, in every question about them.

Exercises 2.1-2.3

2.1 What two climate factors mainly determine a terrestrial biome? [2]

2.2 Which biome has very low precipitation? [1]

2.3 Which biome has frozen soil (permafrost)? [1]

Exercises 2.1-2.3

2.1 What two climate factors mainly determine a terrestrial biome? [2]

2.1

- Temperature and precipitation
-

2.2 Which biome has very low precipitation? [1]

2.2

- Desert
-

2.3 Which biome has frozen soil (permafrost)? [1]

2.3

- Tundra

Exercise 3.1

3.1 Terrestrial biomes are determined mainly by temperature and

[1]

☐

A soil color

B precipitation

C altitude only

D wind speed

Exercise 3.1

3.1 Terrestrial biomes are determined mainly by temperature and

[1]

☐

A soil color

B precipitation

C altitude only

D wind speed

3.1 B

- precipitation

Exercise 3.2 (a)

3.2 A region is hot with heavy rainfall year-round.

(a) Name the biome.

[1]

Exercise 3.2 (a)

3.2 A region is hot with heavy rainfall year-round.

(a) Name the biome.

[1]

(a)

- Tropical rainforest

Exercise 3.2 (b)

3.2 A region is hot with heavy rainfall year-round.

(b) State one feature you would expect there.

[1]

Exercise 3.2 (b)

3.2 A region is hot with heavy rainfall year-round.

(b) State one feature you would expect there.

[1]

(b)

- Any one: high biodiversity, tall dense trees, high productivity

Exercise 3.3

3.3 Explain why deserts and tropical rainforests differ so greatly despite both being warm. [2]

Exercise 3.3

3.3 Explain why deserts and tropical rainforests differ so greatly despite both being warm. [2]

3.3

- They differ mainly in **precipitation** – a desert is very dry while a rainforest is very wet – which controls the plants and animals that can live there