

PONY

سلسلة كتب الأستاذ

SCIENCE



5th
Primary

Second Term

March Revision

By: Amira Ahmed

Earth's Systems

- Scientists divided the Earth into **four** main systems (spheres).

1 Biosphere:

- It is the system that includes all living organisms on Earth.

Examples:

- Humans
- Animals
- Plants
- Birds
- Fish
- Insects
- Microorganisms



The word "Bio" means "Life".

2 Atmosphere:

- It is the system that includes all the gases that surround the Earth.

Examples:

- Oxygen gas
- Carbon dioxide gas
- Water vapor
- Nitrogen gas



The word "Atmos" means "Vapor".

3 Hydrosphere:

- It is the system that includes all of the water on, under, and above the Earth's surface.

Examples:

- Oceans
- Seas
- Rivers
- Groundwater
- Glaciers



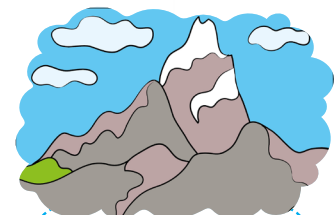
The word "Hydro" means "Water".

4 Geosphere "Lithosphere":

- It is the system that includes rocks, sand, soil, and minerals.

Examples:

- Rocks, sand, and soil on Earth
- Molten rocks and minerals inside under the Earth's surface
- Landforms (mountains – canyons – valleys – dunes)



The word "Geo" means "Earth".

Biome

Biome



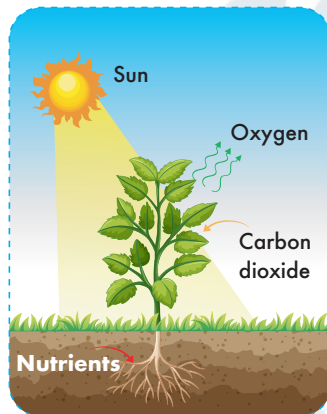
It is a large area of the world that has similar soil, climate, animals, and plants (wildlife).

Examples:

- Deserts
- Forests
- Rainforests
- Grasslands
- Wetlands

Earth's Systems Interactions

During Photosynthesis



Biosphere is interacting with atmosphere:

Plants take in **carbon dioxide** from the air.

Biosphere interacting with geosphere:

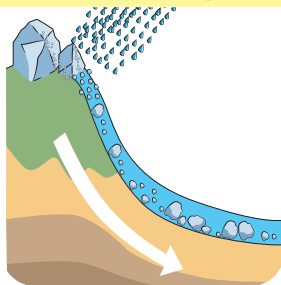
Plants take nutrients from the **soil**.

An interaction between hydrosphere and geosphere:

Biosphere interacting with hydrosphere:

Examples:

Erosion of rocks by water



Lake formation



Examples:

- Humans and animals drink water to survive.
- Plants need water to make their own food.
- Some plants and animals live in water.

Uses of Water

- Transportation
- Manufacturing
- Traveling
- Cleaning
- Bathing
- Recreation

Water Impacts

1 How do living organisms use water?

» All living organisms need water to grow and survive.



2 How does water affect nonliving things?

» Water has an impact on the Earth's surface through two processes:

Weathering



It is the process of **breaking down** of rocks into smaller particles.

then

Erosion




It is the process of **transportation** of small particles of rocks from a place to another.

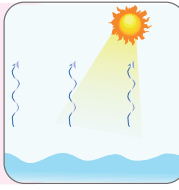
The Amount of Water on Earth

- Nearly **three-quarters (71%)** of the Earth is covered by water.
- Salt water forms about **96.5%** of the water on Earth.
- Fresh water forms **3.5%** of the water on Earth.
- Water is everywhere, in lakes, rivers, seas, oceans, and underground.
- The total amount of water on Earth **does not change**, even if its state changes.
- We cannot make new water, but we can recycle it.

Water in bodies of water on Earth can change from a liquid state into:



A solid state (ice) by **freezing** in extreme cold weather.



A gaseous state (water vapor) by **evaporation** in extreme hot weather.

Bodies of Water

Body of Water	Definition
<p>Lake Most lakes contain fresh water. Some lakes contain salt water.</p>	It is a large water body that is surrounded by land.
<p>River (Fresh water)</p>	It is a water body that flows from an area of higher place to an area of lower place in a definite path.
<p>Groundwater (Fresh water)</p>	It is the water that lies under the Earth's surface due to the leakage of water into the Earth through a layer of porous rocks.
<p>Oceans and Seas (Salt water)</p>	They are very large water body that always contain salt water.

Species in Aquatic Ecosystems

P.O.C	Ponds	Streams	Oceans and Seas
Type of Water	Fresh water	Fresh water	Salt water
Water Movement	Still water	Running water (Cool and flows fast)	Constantly moving in the form of waves
Species	<ul style="list-style-type: none"> • Water lilies • Some worms • Salamanders • Frogs 	<ul style="list-style-type: none"> • Catfish • Salmon (Trout) 	<ul style="list-style-type: none"> • Kelps • Dolphins • Starfish • Flounder fish (Moses fish)

Aquatic Ecosystems

- Aquatic ecosystems include **saltwater ecosystems** and **freshwater ecosystems**.

1 Saltwater Ecosystems

Shallow Areas

- These areas contain **coral reefs** and **intertidal zones**.

• Intertidal Zone

It is the area along the coast that disappears underwater at the high tide and appears at the low tide.

Deepest Areas

- These areas are called **abyssal zones**.

• Abyssal Zone

They are very deep areas in oceans, so sunlight cannot reach them, so there are no plants in it.

② Fresh water Ecosystems

Still Water (Ponds and most lakes)

- In many ponds and lakes, the water is present all year.
- Some other ponds and lakes dry up in the hot summer months.

Flowing Water (Streams and rivers)

- Streams are small bodies of flowing water.
- Many different plants and animals live in moving water.

Examples of Saltwater Lakes:

- Lake **Bardawil** in Egypt
- Lake **Assal** in Djibouti, which has high concentration of natural salts, so:
 - **Fish** can't live in it.
 - There're few **plants** that grow in it.
 - Many types of bacteria live in it.

Examples of Freshwater Lakes:

- Lake **Nasser** in Egypt

Concept 3.2

Summary:

- There are many **natural resources** on Earth, such as **water**, **plants**, and **metals**.
- Most of the water on Earth is **salt water**.
- We must **conserve** fresh water and protect it from **pollution**.

Sources of Water

Salt Water	Fresh Water	Mixture of Salt and Fresh Water
<ul style="list-style-type: none">• Oceans• Seas• Some lakes	<ul style="list-style-type: none">• Rivers• Glaciers• Wetlands	<ul style="list-style-type: none">• Streams• Groundwater• Most lakes
		<ul style="list-style-type: none">• Estuaries

Uses of Water

» In Egypt, water can be used in many purposes, such as:

- Generating electricity (in Aswan High Dam)
- Agriculture

» Around the world, many people work on the water by:

- Fishing
- Transporting goods

Risks that Threaten Fresh Water

1 Scarcity of fresh water







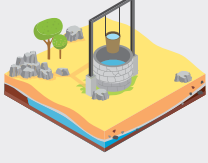

The scarcity of fresh water threatens the survival of living organisms.

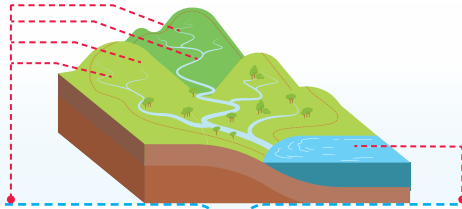
2 Poor quality of fresh water



The poor quality of fresh water leads to the death or extinction of some species of fish and amphibians.

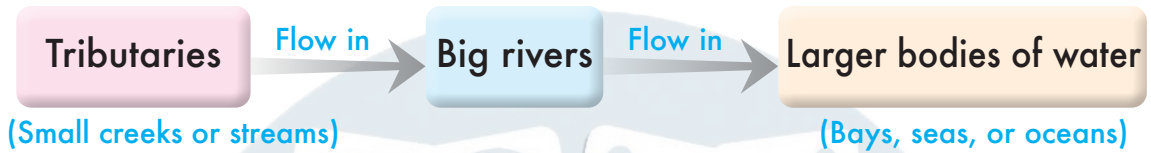
Bodies of Water

Body of Water	Type of Water	Location	Other Information
Rivers 	Fresh water	<ul style="list-style-type: none"> • Start in: mountains as streams. • End in: seas, or larger rivers. 	
Lakes 	<ul style="list-style-type: none"> • Most have fresh water. • Some have salt water. 	They are formed when water is collected in low-lying areas.	A lake is a large water body surrounded by land.
Wetlands 	Fresh water	A land that is partially covered with water.	Types of wetlands: <ul style="list-style-type: none"> • Swamps (marshes) • Ponds (bogs)
Estuaries 	A mixture of fresh water and salt water	An estuary is formed when a river meets an ocean or a sea.	Estuaries are homes to thousands of plants and animals.
Groundwater 	Fresh water	It is the water stored in the cracks and spaces of underground rocks.	
Oceans 	Salt water	They are large bodies of water that surround the continents.	<ul style="list-style-type: none"> • All oceans are connected to each other. • The ocean's floor has mountains, and plains.



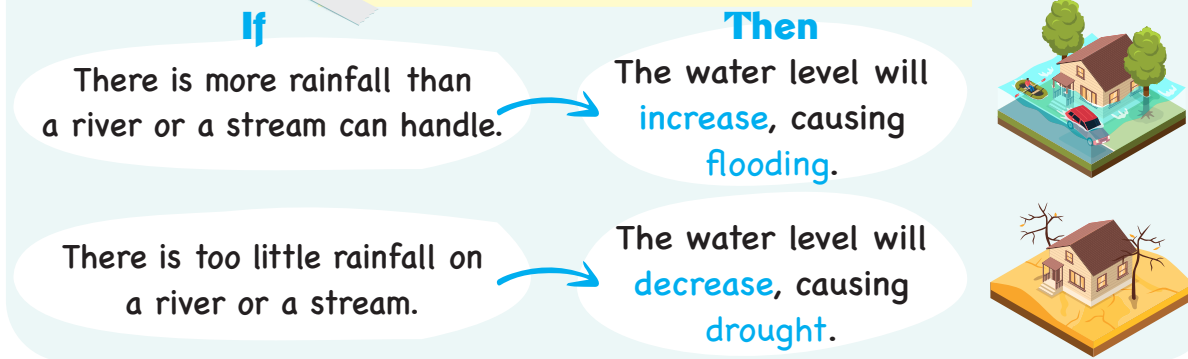
Tributaries: They are small bodies of water, such as small creeks or streams, that flow into larger rivers.

Watershed: It is an area of land where all the water from different sources flows towards a common location.



- Rivers start **upstream** and end **downstream**.
- What happens upstream will affect the bodies of water downstream.

The Effect of Rain on a Body of Water



- Watershed maps can help scientists understand how water bodies interact with each other.

Scenario	Result
If a factory is established near a tributary,	It will pollute other water bodies connected to this tributary and harm many living organisms of water connected to this tributary.
If a farm near a tributary uses chemical fertilizers,	
If wind blows waste from a trash dump into the water of a tributary,	
If dams are built across a tributary,	This affects (changes) the amount of water in other tributaries connected to this tributary.

1 Preservation of resources

- It means restricting access to or use of natural resources.

Examples of resources preservation

1 Ras Mohammed Protectorate
(In South Sinai)

2 Wadi Al-Hitan Protectorate
(In Fayoum)

Examples of (depletion) of natural resources

1 Overfishing
(Causes the decrease of the number of fish in oceans and seas)

2 Overusing groundwater
(Causes running out of the groundwater that leads to the drying up of wells)

2 Sustainability

- It means using resources in a way that does not negatively affect the future supply of these resources.



Sustainable Situation

Cows are placed in one large area of grass.

- The grass will grow back in other areas.
- Cows will still have more food.



Unsustainable Situation

Cows are placed in many small areas of grass.

- The grass will disappear in these small areas.
- Cows will be hungry.

The resources sustainability is affected by:

Overpopulation

Pollution

Overusing the resources

Unequal distribution of resources

Recycling Water

- Solar energy drives the water cycle in nature.
- Humans can recycle wastewater and reuse it in many purposes.



The Water Cycle

Wastewater:

It is the water that has already been used in homes and different industries.

Recycling water:

It is the process of removing waste materials from water.

Wastewater engineers

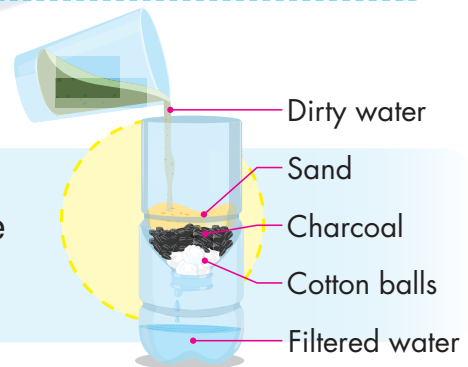
- They are specialized scientists who work in water treatment plants, such as Bahr Al-Baqar wastewater treatment plant in Egypt.

Roles of Wastewater Engineers in Recycling Wastewater

- 1 They decide where to build water treatment facilities.
- 2 They check the water quality and the amounts of pollutants in water.
- 3 They test the treated water to make sure it is safe to use before it is released into rivers and lakes.
- 4 They design ways to protect a community from floods.
- 5 They calculate the amount of drinking water that a community needs.

Filter model:

It helps us remove harmful materials from the polluted water.



1 (A) Complete the following statements:

1. Water turns into steam by
2. Molten rocks are components of

(B) Write the scientific term:

- It is the place where rivers meet seas or oceans and it is home to thousands of plants and animals. (.....)

2 (A) Read the following statements then correct the incorrect ones:

1. Upstream is the place where a river starts.
.....
2. Most of the fresh water on Earth is found as a liquid running water.
.....

(B) Give a reason for:

- Fish do not live in Lake Assal.
.....

(C) Mention one example of a protectorate in South Sinai.

.....

3 (A) Choose the correct answer:

1. When living organisms breathe, there is an interaction occurs between
 (a) the biosphere and the geosphere
 (b) the atmosphere and the hydrosphere
 (c) the biosphere and the atmosphere
 (d) the geosphere and the hydrosphere
2. Among the factors that help us make sources sustainability is
 (a) overpopulation (c) overuse of resources
 (b) damage of resources (d) pollution control

(B) What happens to:

- Animals that live in lakes if the lakes dry up?
.....

1 (A) Complete the following statements:

- In Aswan High Dam, water is used to

(B) Write what the following statement refers to:

- It is a large body of salt water and its floor has mountains and plains.

(.....)

(C) Mention the Earth's interacting systems in the following sentences:

1. Dolphin lives in ocean.

.....

2. Formation of groundwater.

.....

2 (A) Give one example for:

- A salt water body.

.....

(B) Give a reason for:

- Water is a renewable resource on the Earth.

.....

(C) What happens if:

- The rate of rainfall increases on a river?

.....

3 (A) Put true or false:

1. An estuary is formed when salt water is mixed with fresh water. ()
2. From the risks that threaten the world is the large quantity of fresh water. ()

(B) Cross the odd word:

- Animals – Soil – Plants – Microorganisms (.....)

1 (A) Choose the correct answer:

- Microorganisms is a part of
- (a) geosphere (b) hydrosphere (c) biosphere (d) atmosphere

(B) Write Scientific term:

1. It is the action of control reaching of humans to the natural resources or using them. (.....)
2. It is the water that found in the cracks and spaces of underground rocks. (.....)
3. It is an area of land where all the water flows in one direction to a common location such as an ocean, a sea, or another large water body. (.....)

2 (A) Complete the following statements:

- Geosphere is also known as

(B) Give a reason for:

- Farms near tributaries may cause water pollution.
-

(C) Mention:

- A type of plant that lives in ponds.
-

3 (A) Give one example for:

- A component of hydrosphere

(B) What happens if:

- Plants can't get carbon dioxide gas from air?
-

(C) Mention one use of:

- Oil products in our life.
-

1 (A) Complete the following statement:

- The percentage of salty water is about of the Earth's hydrosphere.

(B) Write the scientific term:

1. using natural resources in a way that does not negatively affect their future supply. (.....)
2. It is the water found in rivers, rainwater, groundwater, and most lakes. (.....)

2 (A) Mention one use of:

- Trees as a natural resource.
-

(B) Correct the underlined word:

- During the water cycle in nature, water evaporates into water vapor, forming rains. (.....)

(C) Give a reason for:

1. Scientists tend to preserve fresh water on Earth.
.....
2. The Earth looks like a blue marble from space.
.....

3 (A) Mention one importance of water filter.

.....

(B) Cross the odd word:

- Dolphins – Moses fish – Salamanders – Starfish (.....)

(C) Complete the following table:

P.O.C	Dolphins	Waterlillies
Live in
Type of Water

1 (A) Complete the following statements:

1. Intertidal zone and are found in shallow areas.
2. Salamander lives in

(B) Write what the following statement refers to:

1. It is an area along the coast that disappears at the high tide and appears at the low tide. (.....)
2. The scientists who work in water treatment plants. (.....)

2 (A) Mention one example of biome. سلسلة كتب

(B) What happens if:

1. Well water is used more than is replenished by rainfall?

2. Cutting down too many trees?
 سلسلة كتب الاستاذ

3 (A) Put true or false:

- Freshwater ecosystems cover a large portion of the Earth. ()

(B) Cross the odd word:

1. Tree – Birds – Microorganisms – Rocks (.....)
2. Streams – Oceans – Gulf – Seas. (.....)

Models answers

March Tests Model Exam (1)

Q 1 A) 1- heating (evaporation) **2-** geosphere
B) • Estuary

Q 2 A) 1- ✓

2- Most of the fresh water on Earth is found as frozen water called glaciers.

B) • Because it contains high concentration of natural salts.

C) • Ras Mohamed protectorate

Q 3 A) 1- © **2-** Ⓐ

B) • The animals that live in lakes can't survive.

March Tests Model Exam (2)

Q 1 A) • generate electricity

B) • Ocean

C) 1- Biosphere and hydrosphere

2- Geosphere and hydrosphere

Q 2 A) • Ocean/ Sea

B) • Because water can be renewed in nature through the water cycle.

C) • The level of water in this river will increase causing flooding.

Q 3 A) 1- ✓ **2-** ✗

B) • Soil

March Tests Model Exam (3)

Q 1 A) • ©

B) 1- Preservation **2-** Groundwater

3- Watershed

Q 2 A) • lithosphere

B) • Because chemical fertilizers used in the farm cause water pollution.

C) • Waterlilies

Q 3 A) • River

B) • They can't make photosynthesis process.

C) • They are used in making plastic products.

March Tests Model Exam (4)

Q 1 A) • 96.5%

B) 1- Sustainably

2- Freshwater

Q 2 A) • Trees are used in making paper.

B) • clouds

C) 1- Because the amount of fresh water on Earth is limited.

2- Because nearly three-quarters (71%) of the Earth's surface is covered with water.

Q 3 A) • It is used to remove harmful materials from the water.

B) • Salamanders

C)

P.O.C	Dolphins	Waterlilies
Live in	Oceans	Ponds
Type of Water	Salt water	Fresh water

March Tests Model Exam (5)

Q 1 A) 1- coral reefs **2-** ponds

B) 1- Intertidal zone

2- Wastewater engineers

Q 2 A) • Desert/ Forest

B) 1- The amount of water in this well will decrease, so it will dry up.

2- It causes deforestation.

Q 3 A) • ✗

B) 1- Rocks

2- Streams

تطبيق



مذكرات جاهزة للطباعة

لتحميل الملفات التعليمية مجاناً للمعلم والطالب

مذكرات وملازم / مراجعات وملخصات / امتحانات / كتب الوزارة /
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امسح الكود بموبايلك علشان تقدر تثبت التطبيق

وتقدر ف أي وقت تحمّل ال نفسك فيه ببلاش

هيغنيك عن البحث والجروبات والقنوات الكثيرة

