Name __KEY__   Per.____   (×30)

U1L1 ~ Earth's Atmosphere

Introduction (p. 9)

A. Why is Earth's atmosphere important? __It contains the gases that living things need to survive and because it is where weather occurs.__

B. Earth is a __System__, with all of its parts affecting one another.

> **System:** A group of interacting parts, with each piece influencing the behavior of the whole.

1. Weather in the Earth System (p. 10 - 11)

A. Give two examples of systems:

- __Solar system__
- __Human body__

B. A __System model__ is a simplified representation of a system.

C. What are the 4 parts of the Earth's systems?

1. __Land__ 2. __water__ 3. __living things__ 4. __air__

D. Use the table to describe the spheres that work together to make up the Earth system.

SPHERE	DESCRIPTION
Biosphere	Parts of Earth in which organisms are able to live, along with all Earth's living things.
Geosphere	All of the rock, sand and soil on Earth including at Earth's surface and deep underground
Hydrosphere	All of the water on Earth including ice, liquid water in oceans, rivers, lakes and water vapor.
Atmosphere	Envelope of air that surrounds the solid Earth and includes gases + aerosols.

Atmosphere: *Envelope of air that surrounds the solid Earth, including gases and aerosols.*

Weather: *The condition of the atmosphere & its phenomena in a certain place at a specific time*

E. Where does weather occur? *In the atmosphere*

F. What does weather show? *the interactions between Earth's spheres*

G. All changes and interactions among Earth's spheres need *energy* to happen. Almost all of this comes from the *sun*.

2. The Composition of Earth's Atmosphere (p. 12)

A. 99% of "air" or atmosphere is made up of *nitrogen* & *oxygen* The remaining gases include *argon, carbon dioxide & other pollutants*

Aerosols: *Tiny liquid & solid particles suspended in the atmosphere*

B. Examples of aerosols include *ash, soot, dust, sea salt, pollen*

C. Where do the atmosphere's aerosols come from? *natural processes + human activity* Give one example of this. *Pollen from plants, ash from volcanoes*

D. The *biosphere* is the source of much of the oxygen gas in the atmosphere. Most of this oxygen is given off by *plants* and *other organisms* that perform *photosynthesis*.

3. The Structure of Earth's Atmosphere (p. 13)

A. What are the 3 properties/characteristics that are used to divide the atmosphere into layers?

1. *Composition*
2. *Distance between its particles*
3. *Temperature*

B. Earth's atmosphere is divided into *5* layers.

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C. Use the table below to list the layers of the atmosphere from closest to the Earth to furthest away and describe them.

	Name	Description
Furthest ↑	Exosphere	• Very top layer • Blends into space (doesn't have clear outer edge)
	Thermosphere	• Few air particles that are very far apart • Temp at top is very hot (3,632°F)
	Mesosphere	• Coldest layer (Highs of -15°c) •
	Stratosphere	• Very little water • more ozone than any other layer
Closest 🌐	Troposphere	• Closest to Earth • where weather occurs • Thinnest layer (6-20km) • People live in it

4. Elements of Weather (p.15)

A. Scientists who study the conditions and phenomena in the atmosphere and predict weather are called <u>*meteorologist*</u>.

B. What 5 elements of weather do these scientists measure?

1. <u>Air temperature</u>
2. <u>Air Pressure</u>
3. <u>Windy</u>
4. <u>Precipitation</u>
5. <u>Humidity</u>

C. Weather is related to but different from climate. Describe how they are different. <u>Weather is the state of the atmosphere at any given time & place. Climate describes the weather patterns in a region over a long period of time</u>