5.1.4 Student Journal

Earth's System Interactions









Name:_____

Episode 1

Circle the component your teacher assigned you: Sheep Dirt Mountains Trees Grass Snow Air Clouds		
My component	Another component	How do they interact?
_____ interact(s) with		
_____ interact(s) with		
_____ interact(s) with		
_____ interact(s) with		

Four Spheres Video, Part 1

There are _____ parts that all work together to make Earth.

These parts are called _____ and contain all the stuff on our planet.

These spheres are called the _____, _____, _____, and _____.

The first sphere is the _____.

Geo means _____ and is a Greek root also used in words like geometry.

The geosphere is like the _____ of our planet.

It's made up of all the _____ and

_____ on Earth. The

_____ that they make up are part of

the geosphere too.

The geosphere only includes

_____ stuff.

List some landforms in the geosphere.

-
-
-
-
-
-
-

The second sphere is the _____.

Bio means _____ and is a Greek root also used in words like biology.

The biosphere is made up of _____ which are regions that have similar kinds of plants, animals and other living things.

List some biomes in the biosphere.

-
-
-
-
-
-

Biomes are what make up the _____.

Unlike the _____, everything in the _____ is alive.

Four Spheres Video, Part 2

The third sphere is the _____.

Hydro means _____ and is a Greek root.

This means that all the _____ in the ocean and all the _____ in the lakes and rivers is in the hydrosphere.

This includes all of the water trapped in _____ and held deep _____.

There is also water in the _____ around us which we can see in the form of rain and snow.

List some things included in the hydrosphere.

-
-
-
-
-

The _____ is the biggest part of the hydrosphere.

The fourth sphere is the _____.

Atmos comes from the Greek word for_____ .

Although we can't see or grab onto the _____, it reaches everywhere and covers the entire planet like a _____.

It is split up into many different _____.

Layers of the atmosphere:

Highest

- _____
- _____
- _____, coldest layer
- _____, absorbs harmful rays
- _____, contain 80% of air

Earth

While the rain is part of the _____, the air it falls through is part of the _____.

The wind that pushes the _____ around is part of the _____, too.

Are all interactions good?

Earth is made up of four major systems that all work together to shape our planet. These systems are the geosphere, hydrosphere, atmosphere, and biosphere.

These systems don’t work alone—they interact with each other all the time. For example, when rain (from the atmosphere) falls on a mountain (part of the geosphere), it can cause weathering and erosion. This means the rock breaks down and the pieces are carried away by water (from the hydrosphere). Plants (from the biosphere) can also grow in cracks in rocks and break them apart.

Sometimes, these interactions can cause natural hazards. For example, heavy rain can loosen soil and cause a landslide. Movements in the geosphere can cause earthquakes or volcanic eruptions. These events can be dangerous for people, animals, and the environment.

Humans can’t stop natural hazards from happening, but we can find ways to reduce their effects. Engineers and scientists design solutions like stronger buildings, early warning systems, and barriers to stop flooding or landslides. These ideas help keep people and communities safer.

By learning how Earth’s systems work together, we can better understand our planet—and how to protect it.

Communicate

_____ (my component) is part of the _____ (sphere).

_____ (my component) interacts with _____ (other component). The interaction between them is

_____.

The _____ (other component) is part of the _____ (sphere).

I know this because _____.

These interactions affect Earth's system by

_____.

I know this because

_____.

This shows that Earth's systems all interact to make Earth what it is!

EPISODE 2

Part 1

The phenomenon I chose is:

_____.

The relevant components are:

_____ and _____.

The spheres involved are:

_____ and _____.

Part 2

How are the two components from DIFFERENT spheres interacting?

_____

_____

Part 3: Develop a model

Develop a model to show the interaction of your components and the spheres of those components.

Be sure in include:

- ☐ component one
- ☐ component two
- ☐ sphere for component one
- ☐ sphere for component two
- ☐ arrows
- ☐ labels
- ☐ movement of matter if applicable
- ☐ where the energy is (optional)
- ☐ what is the affect the interaction is having on the system
- ☐ explanation

Your model could be a written explanation, an oral presentation, a physical creation of a model or some sort of drawing.

Space for written explanation, drawing or to sketch ideas.

Communicate

Think back to the first image where you identified components with the sheep. What would happen if one of the spheres were to disappear from the Earth! You may choose any one of the spheres and describe how it would affect each of the other spheres if it were no longer around.

1. Check which sphere is 'disappearing':

   ☐ Geosphere (dirt, trees, mountains,grass)
   ☐ Biosphere (sheep)
   ☐ Hydrosphere (clouds, snow)
   ☐ Atmosphere (air)

2. What would happen to the other spheres if the _____ disappeared?

   Use specific examples from the spheres to describe the effects.