



Connect the Circles

biosphere, geosphere, atmosphere, hydrosphere

The Earth System Unit

Shhhh!! Can you hear that? That's the sound of you breathing. While you may not ever think about breathing, there are a lot of things in your body that are working away at this very moment to make this happen. Every living thing needs air to survive, so it's important that the different systems in your body work together to help you take in air.

Did you know that the Earth works just like your body? Just like you, it has different areas that also work together to keep it running. In a way, the Earth has its own set of lungs, its own heart, and body. It even needs water to live! These all work together to keep Earth healthy. Without these things, we would not be able to live on this planet.

There are a lot of things that make up Earth's different systems — even you! What do plants, animals, people and bugs have in common? These are all living things. The **biosphere** is any place where living things on Earth live. That means that everything from the birds high up in the sky all the way down to the small, little animals deep down in the ocean are all part of the biosphere. Since you are a living thing, you are inside the biosphere as well. In a way, you could think of the biosphere as the heart of Earth. If the other things do not work properly, then the heart would not be able to help things live.

One thing that helps keep your heart pumping blood in your body is the air. Take one deep breath in... and another deep breath out. Every time you do that, the air you take in helps your heart spread blood in your body, keeping you alive and in tiptop shape. The Earth has its own set of lungs. The **atmosphere** is the layer of different gases that cover the Earth and stretch just over 60 miles (100 km) from the ground. You are able to breathe because the atmosphere has oxygen in it. All this air also protects you against bad stuff in outer space that could harm you; think of it like sunscreen for the Earth. Without the

atmosphere, we would not be able to breathe and the sunshine would give us really bad burns! That does not sound like much fun.

There are other characteristics that help make up you, not just your heart and lungs. Look down at your hands. Can you wiggle your fingers? What are your fingers connected to? Hopefully to your hand! Your fingers and toes are all a part of your body. It's important to take good care of your body because it's where your heart, lungs, and all the other stuff in your body are stored. Taking good care of your body will keep it running for years and years. While the Earth may seem like just a planet and not a human being, it does have its own body. It just has parts that are very different than yours.

Did you know that big, tall mountains are similar to the Earth's fingers? You might even say that its toes could be the big ice cliffs that are in the cold places at both the top and bottom of the world. The **geosphere** is all the land that covers the surface of the Earth. That means mountains, the bottom of lakes and oceans, or even the land you walk on every day. In a way, the geosphere is similar to the Earth's body; all of the other parts work together to keep it healthy.

Can you think of what every body needs to keep it running? It's something that almost every plant and animal needs to live: water! That's right, even the Earth needs water to keep it going. The **hydrosphere** is all the water on Earth, like the rivers, streams, oceans, ice, the water floating around in the air, and even the water deep down in the ground. This is a really important part of Earth. It keeps the other systems going. The biosphere needs water to drink, the geosphere is shaped by water that runs along the ground, and the atmosphere helps spread the water around the world. Just as your body needs water, the Earth and all the other systems need water too!

Even though the Earth is a lot bigger than you, it is very similar to you. It needs a body, a heart, lungs, water, and many other things. While these things just seem like a part of every day life, they're the reason you are here today. These pieces work really hard to make the Earth a place you can call home. That's why it's important that we take good care of it. If not, we may end up like Mars! That's a planet next to Earth that does not have oceans, air that we can breathe or even life. Poor Mars.

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