

Earth's Connected Systems

Grade 5 • SCIENCE • Students practice identifying interactions among the geosphere, hydrosphere, atmosphere, and biosphere. • Standards: 5-ESS2-1

Read each scenario carefully. Identify which two Earth systems are interacting and explain how they work together.

1. Rain falls from clouds and fills a lake. Which two Earth systems are interacting?
2. A tree's roots grow into the soil and hold it in place. Which two Earth systems are interacting?
3. Ocean waves crash against rocks on the shore and break them into smaller pieces over time. Which two Earth systems are interacting?
4. A deer drinks water from a stream. Which two Earth systems are interacting?
5. Wind blows across a sandy beach and moves the sand into small hills called dunes. Which two Earth systems are interacting?
6. A fish swims in a river and breathes oxygen dissolved in the water. Name all three Earth systems involved in this scenario.
7. Heavy rainfall washes soil from a hillside down into a valley. Explain how three Earth systems interact in this scenario.
8. Plants take in carbon dioxide from the air through their leaves and use it to make food. Which two Earth systems are interacting and what is being exchanged?
9. When animals and plants die in a forest, their bodies break down and become part of the soil, adding nutrients. Describe how the biosphere and geosphere interact in this process.
10. A farmer waters crops with water pumped from underground. The plants use the water and release water vapor into the air through their leaves. Identify all three Earth systems in this scenario and explain how they are connected.

Answer Key — Earth's Connected Systems

For the teacher / parent. Do not distribute with the worksheet.

1. Atmosphere and hydrosphere (*Rain (atmosphere) falls into the lake (hydrosphere).*)
2. Biosphere and geosphere (*The tree (biosphere) interacts with the soil (geosphere).*)
3. Hydrosphere and geosphere (*Ocean water (hydrosphere) breaks down rocks (geosphere).*)
4. Biosphere and hydrosphere (*The deer (biosphere) drinks from the stream (hydrosphere).*)
5. Atmosphere and geosphere (*Wind (atmosphere) moves sand (geosphere).*)
6. Biosphere, hydrosphere, and atmosphere (*The fish (biosphere) lives in the river (hydrosphere) and uses oxygen that came from the air (atmosphere).*)
7. Rain from the atmosphere falls onto soil in the geosphere and moves it, while the water becomes part of the hydrosphere. (*Atmosphere (rain), geosphere (soil), and hydrosphere (flowing water) all interact.*)
8. Biosphere and atmosphere; carbon dioxide is moving from the atmosphere into plants. (*Plants (biosphere) take carbon dioxide from the air (atmosphere).*)
9. Dead organisms from the biosphere decompose and their materials become part of the soil in the geosphere, enriching it with nutrients. (*Matter moves from living things (biosphere) into the soil (geosphere).*)
10. The hydrosphere provides underground water, the biosphere includes the plants that absorb and release water, and the atmosphere receives water vapor from the plants. Water moves from hydrosphere to biosphere to atmosphere. (*Water cycles through hydrosphere (underground water), biosphere (plants), and atmosphere (water vapor).*)