

## BIOSPHERE ANSWER KEY

1. Biosphere: The region of Earth in which all organisms live.
2. Interactions:
  - land with water (hydrosphere)
  - land with air (climate, atmosphere)
  - land with Earth
  - land with energy
3. Factors:
  - distance between sun and Earth (hotter, cooler)
  - tilt of Earth on its axis for seasons
  - climate
  - weather
  - erosion
  - natural forces such as earthquakes
  - chemical erosion
4. Photosynthesis: the use of light and carbon from the atmosphere by organisms to create energy, with oxygen as a byproduct. It is the primary link in the food chain, upon which all life on Earth depends. Importantly, it also takes excess carbon out of the air.
5. Carbon Cycle: The movement or exchange of carbon between the Earth's atmosphere, ocean, and land. Scientists are extremely interested in the carbon cycle and its potential role in global warming - to see whether or not the biosphere will be able to moderate the excess carbon being put into the atmosphere.
6. Dead Zone: an area where no life can survive. Nitrogen from agriculture and industry, along with sewage, and excess phytoplankton growth and deoxygenated water - or dead zones.
7. Fossil & forest fuel burning has increased by 30%.
8. Land stores carbon in living biomass, as well as in decay. The oceans store carbon mostly as dissolved carbon and in phytoplankton.
9. The carbon cycle has reacted to extra carbon by higher rates of phytoplankton and land photosynthesis.
10. Significance of extra carbon: Extra carbon dioxide blocks heat energy & works to increase global temperatures.