

EARTH SYSTEMS-SEMESTER 2

Hydrosphere

Students will explain natural water reservoirs and how water moves from one reservoir to another

- H1- I can identify the reservoirs of Earth's water cycle and graph the size of these reservoirs
- H2- I can illustrate the movement of water on Earth and describe how the processes that move water use energy from the sun

Students will explain how to evaluate and manage available freshwater resources

- H3- I can use knowledge of how water behaves to solve a water pollution problem
- H4- I can judge the quality of water from a stream
- H5- I can describe how to make a long-term water use plan

Students will describe the characteristics of oceans and how these characteristics affect life on Earth

- H6- I can graph how sea level has changed in the past and connect these up's and down's to changes in the water cycle
- H7- I can describe the physical characteristics of the oceans (waves, currents, El Nino, tides)
- H8- I can find how the physical properties of oceans affect life (salt, depth, tides, and temperature)
- H9- I can show how energy flows through oceans
- H10- I can explain how changing sea levels could affect life on Earth

Atmosphere

Students will describe how carbon and oxygen atoms cycle through Earth's Systems

- A1- I can diagram the nitrogen cycle
- A2- I can give examples of human actions that affect the nitrogen cycle
- A3- I can define ozone and explain how it can be good or bad
- A4- I can describe the role of living organisms in producing the ozone layer and how ozone protected the first life on Earth
- A5- I can trace the movement of a carbon atom through the carbon cycle
- A6- I can compare how fast CO₂ is being put into the atmosphere and being removed from it
- A7- I can show how humans might be changing the carbon cycle
- A8- I can analyze data relating to the concentration of CO₂ in the atmosphere over the past 100 years
- A9- I can explain how the biosphere interacts with the atmosphere and predict future interactions
- A10- I can explain how the hydrosphere interacts with the atmosphere and predict future interactions
- A11- I can explain how the geosphere interacts with the atmosphere and predict future interactions
- A12- I can research, evaluate, and report on international efforts to protect the atmosphere

Students will describe changes in the sun's energy as it goes through Earth's systems

- A13- I can illustrate the distribution of the sun's energy as it is reflected, changed into heat, or stored by plants
- A14- I can describe the pathways for converting and storing light energy as chemical energy
- A15- I can investigate the conversion of light energy from the sun into heat energy by various Earth materials
- A16- I can demonstrate how absorbed solar energy leaves the Earth's system as heat radiating to space
- A17- I can model how the greenhouse effect slows heat escaping the Earth
- A18- I can research global changes and relate them to Earth's systems

Students will understand how energy changes affect weather and climate

- A19- I can compare climate and weather
- A20- I can describe how technology monitors changes in climate and weather
- A21- I can describe the effect of solar energy on climate and weather
- A22- I can explain how uneven heating helps make the wind blow and helps create the ocean currents
- A23- I can describe the Coriolis effect and how it influences wind and ocean current patterns
- A24- I can relate how weather patterns are the result of interactions among ocean currents, air currents, and topography