

Science 7



Earth's Cycle

Science 7 Curriculum

Power Objective

P.O.#2: Explain how Earth's cycles interrelate. (P.O.#2 Proficiency Rubric)

Academic Vocabulary

- ☐ thermal energy
- ☐ water cycle
- ☐ lithosphere
- ☐ biosphere
- ☐ hydrosphere
- ☐ atmosphere
- ☐ porosity
- ☐ permeability
- ☐ surface water
- ☐ barometer
- ☐ gravity
- ☐ topographic map
- ☐ weather
- ☐ climate
- ☐ convection cell

- ☐ Coriolis effect
- ☐ erosion
- ☐ aquifer
- ☐ run-off
- ☐ watershed
- ☐ ocean currents
- ☐ surface currents
- ☐ density currents
- ☐ pollution
- ☐ air mass
- ☐ weather fronts
- ☐ ground water
- ☐ carbon cycle
- ☐ nitrogen cycle
- ☐ Gulf Stream

- ☐ upwelling
- ☐ Great Ocean Conveyor Belt
- ☐ evaporation
- ☐ condensation
- ☐ precipitation
- ☐ air pressure
- ☐ ozone layer
- ☐ salinity
- ☐ wind
- ☐ sea breeze
- ☐ land breeze
- ☐ states of matter: solid, liquid and gas

Enduring Understandings

Students understand that...

- Thermal energy is transferred as water changes state throughout the water cycle.
- The water cycle drives many processes on earth including weather, oceanic currents, soil formation, weathering and erosion dependent upon permeability and porosity.
- The sun is the source of energy for wind, air and ocean currents.
- The jet stream is an example of an atmospheric current that determines weather patterns affecting global as well as local areas.
- Ocean currents are influenced by factors other than thermal energy, such as water density, mineral content, ocean floor topography and the Earth's rotation.
- The composition of the layers of the atmosphere is determined by the elevation (gravity) and the temperature of the area.

Essential Questions

- What is the force behind the water cycle?
- What effect might the water cycle have on weather?
- How does the water cycle influence the abiotic processes that affect and shape the earth?
- How does the energy of the sun produce winds, air and ocean surface currents (diff. heating, convection currents, Coriolis)?
- What is the effect of the position of the jet stream on local and global weather patterns?
- How is the movement of ocean water affected by temperature, density, topography and the earth's rotation (Coriolis)?
- What is the composition of the atmosphere and how do the elements/molecules of the atmosphere interact with each other and with the other spheres of the earth? Why is this interaction important to life on Earth?