



Atmosphere: Teacher Tips & Helpful Hints

N.C.S.S: ESS.7.1 Understand the atmosphere and how the cycling of water relates to Earth's weather and climate.

- The activity is broken up into three different parts:
 - **Part 1: Layers of the Atmosphere** (ESS.7.1.1)
 - **Part 2: Properties of Air** (ESS.7.1.1, & 7.E.1.3)
 - **Part 3: Cycling of Water** (ESS.7.1.2)

Part 1: Layers of the Atmosphere

- There are 10 Earth's Interior Event Cards.
- Resources that students may use to rearrange cards:
 - <https://www.nationalgeographic.org/encyclopedia/atmosphere/#:~:text=1%2F17-,We%20live%20at%20the%20bottom%20of%20an%20invisible%20ocean%20called,also%20part%20of%20Earth's%20atmosphere.>
 - <https://scied.ucar.edu/atmosphere-layers>
- There is a *Layers of the Atmosphere: Student Activity Sheet* available.

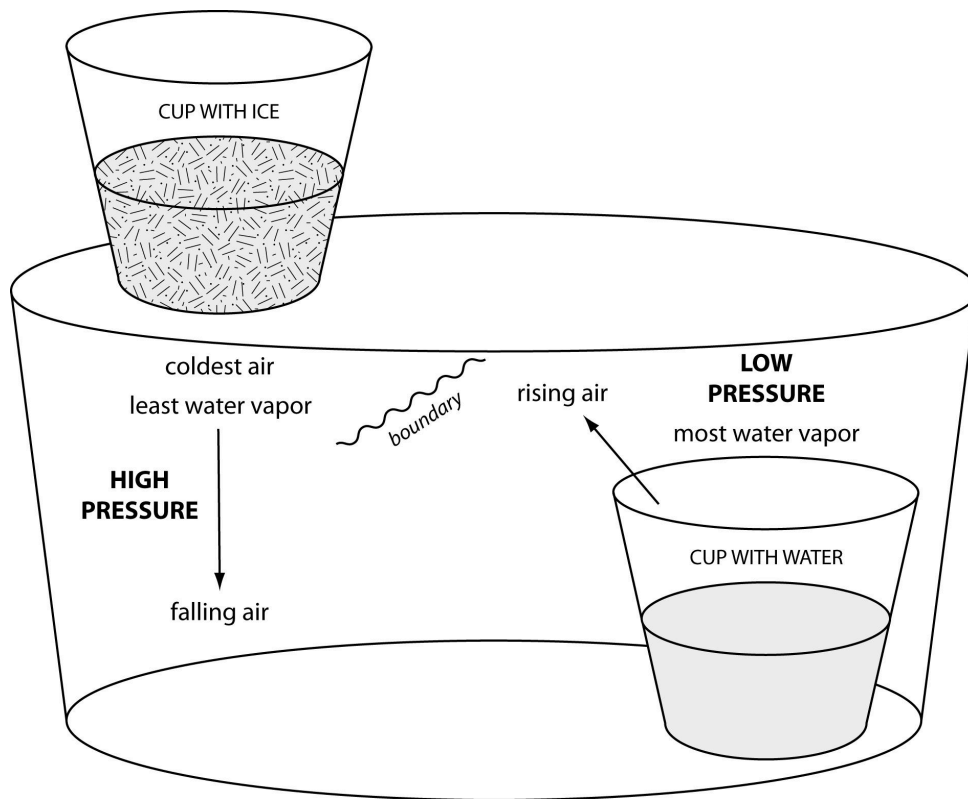
Part 2: Properties of Air

- Students have four chances to complete **Part 1: Keep the Cotton Dry - Engineering Challenge**.
- To keep the cotton ball dry, the cotton ball should be stuck to the bottom of the 1oz. Cup with a piece of double-stick tape. The 1 oz. cup needs to be turned upside down when placed into the 9 oz. cup of water. The popsicle stick and rubber band create a "handle" to submerge the cup into the water. See photo.
- Students need 1 can of clear non-diet soda for **Part 2: The Rise and Fall of Raisins!**
- There is a *Properties of Air: Student Activity Sheet* available.



Part 3: Cycling of Water

- This activity needs to be done on a clear day when the sun is shining.
- Students will use 1oz. cups to make ice.
- Water should collect inside the lid directly below the ice.
- For **Part 2: Challenge** designs that work well absorb and trap more heat
- **Part 3: Model the Atmosphere** answer key on page 2.



N.C.S.S Clarifying Objectives

- ESS.7.1.1 Analyze and interpret data to compare the composition, properties and structure of Earth's atmosphere to include: mixtures of gases and differences in temperature and pressure within layers.
- ESS.7.1.2 Use models to explain how the energy of the Sun and Earth's gravity drive the cycling of water, including changes of state, as it moves through multiple pathways in Earth's systems and relates to weather patterns on Earth.
- ESS.7.1.3 Analyze and interpret data to explain the relationship between the movement of air masses, high and low pressure systems, frontal boundaries and weather conditions that may result.