

GLOBE Clouds

Connections to Next Generation Science Standards (NGSS)

Following are Disciplinary Core Ideas in the NGSS that are related to GLOBE Clouds. Learn more, including resources to support learning, at:

- [NASA GLOBE Clouds \(https://www.globe.gov/web/s-cool/home\)](https://www.globe.gov/web/s-cool/home)
- [Resources \(https://observer.globe.gov/de/do-globe-observer/clouds\)](https://observer.globe.gov/de/do-globe-observer/clouds) - for taking Cloud Observations using the GLOBE Observer app
- [Making Science Come Alive with Clouds \(https://observer.globe.gov/documents/19589576/52621820/NSTA+Science+SCOPE+Integrating+Tech+with+Clouds/8da3cd4b-8832-47e4-85f4-fee021b7fdb\)](https://observer.globe.gov/documents/19589576/52621820/NSTA+Science+SCOPE+Integrating+Tech+with+Clouds/8da3cd4b-8832-47e4-85f4-fee021b7fdb) - article in NSTA Science Scope

Elementary School: Disciplinary Core Ideas

ESS2D Weather and Climate

- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1)
- Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.

ESS2.A: Earth Materials and Systems

- Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather.

ESS2.C The Roles of Water in Earth's Surface Processes

Middle School: Disciplinary Core Ideas

ESS2.C The Roles of Water in Earth's Surface Processes

- Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land.

- The complex patterns of the changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns.

ESS2.D Weather and Climate

- Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude, and local and regional geography, all of which can affect oceanic and atmospheric flow patterns.
- Because these patterns are so complex, weather can only be predicted probabilistically.

PS1.A Structure and Properties of Matter

- Each pure substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it.
- The changes of state that occur with variations in temperature or pressure can be described and predicted using these models of matter.

High School: Disciplinary Core Ideas

ESS2.C The Roles of Water in Earth's Surface Processes

- The abundance of liquid water on Earth's surface and its unique combination of physical and chemical properties are central to the planet's dynamics. These properties include water's exceptional capacity to absorb, store, and release large amounts of energy, transmit sunlight, expand upon freezing, dissolve and transport materials, and lower the viscosities and melting points of rocks.

ESS2.D Weather and Climate

- The foundation for Earth's global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage and redistribution among the atmosphere, ocean, and land systems, and this energy's re-radiation into space.