

Physical Science 107

Lesson One: Temperature, Structure and Composition of the Atmosphere

Reference: Tarbuck, Lutgens and Tasa, Earth Science, Chapters Sixteen, Seventeen and Twenty.

Vocabulary

climate	conduction	carbon dioxide CO ₂
weather	convection	nitrogen N ₂
electromagnetic radiation (EMR)	radiation	oxygen O ₂
electromagnetic spectrum (EMS)	heat	ozone O ₃
stratosphere	infrared	water H ₂ O
troposphere	reflection	
	absorption	
	albedo	

What is air?

Chemical composition, properties of nitrogen and oxygen, water vapor, basic properties of gases, definition of air pressure,

Demonstrations

Prepare oxygen and show that a candle burns longer in pure oxygen

What is the structure of the atmosphere?

Layers, temperature changes, pressure changes, ozone layer

How does the Earth move in space?

Revolution, rotation, tilt of planet, intensity of sunlight at different locations on the globe

Demonstration

Use flashlight to show weakening energy density on tilt

How is the atmosphere heated?

Heat vs temperature, convection (discuss density), conduction, radiation (discuss light, reflection, albedo)

Demonstrations

Lava lamp, infrared camera, albedo demo

How land and water absorb heat differently

isothermal maps

Water

Phases of water