Student Work, Science Collages

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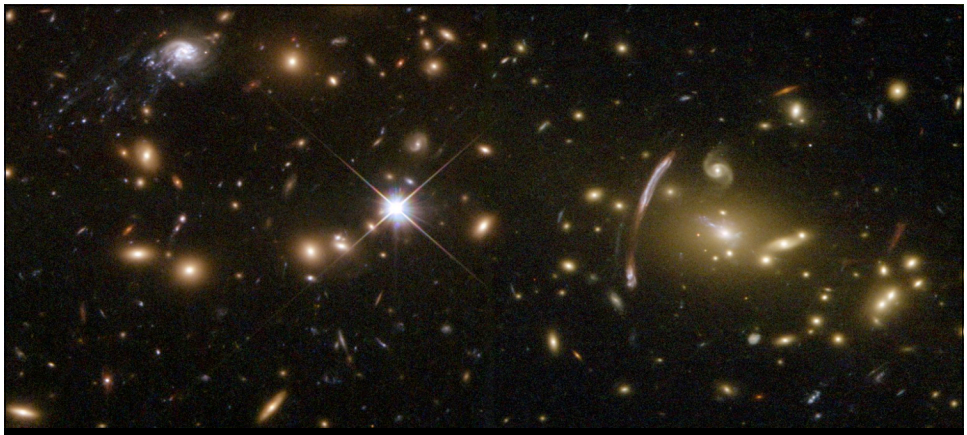
What is Science Literacy?

- Can you correctly identify each of the statements at the right as true or false?

- The center of the earth is very hot.
- Lasers work by focusing sound waves.
- All radioactivity is man-made.
- Electrons are smaller than atoms.
- Antibiotics kill viruses as well as bacteria.



"Scientific literacy, quite simply, is a mix of concepts, history, and philosophy that help you to understand the scientific issues of our time."

Robert M. Hazen, *Science Matters: Achieving Scientific Literacy*

SCIENTIFIC LITERACY

Agenda

Who I am

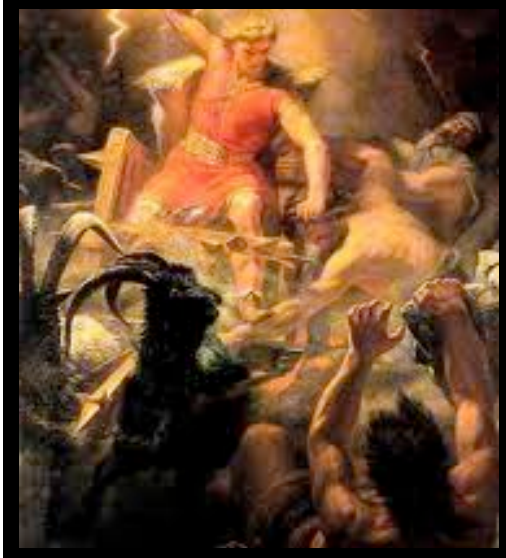
What is Science Literacy?

Writing Prompt: Create a story to explain thunder and lightening.

Sophie's World

If Time: Milky Way Plate Tectonics

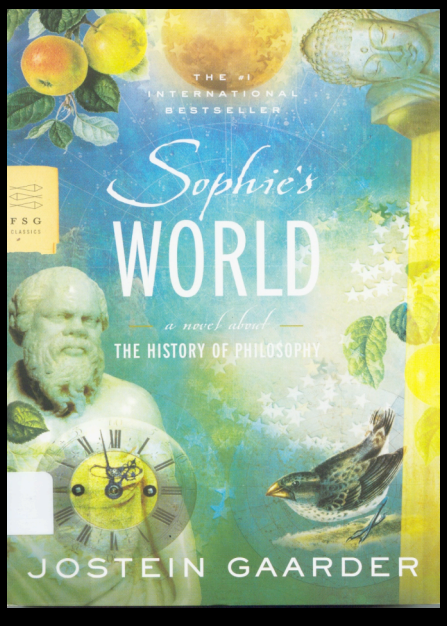
Myth → Natural Philosophy → Science



- Mythological explanation was that Thor rode across the sky in a chariot pulled by goats, fighting the forces of chaos – the treacherous giants.
- Thor's hammer gave him almost limitless power. When he threw it he could make it rain or slay giants.

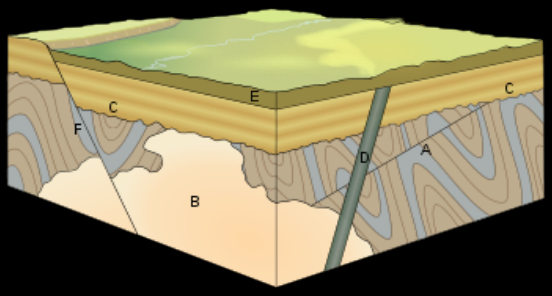
Learning Goal: Understand how scientists use models to help them understand the natural world.

- Why are Legos the most ingenious toy in the world?
- Vocabulary Activity
- Reading



Milky Way Plate Tectonics

I'm going to give you a series of instructions. Your task is to record your observations after each task. Remember the goal of written observations is for them to be accurate and useful.



CONNECTING ACTIVITY & CONTENT: THINKING MAPS

Cause(s)	"Event"	Effect(s)
Observation 1: Uniform Force	Force is not something that can be directly observed. The effect of force, however, can be observed. Sometimes evidence is direct, other times it is indirect – something you need to infer from your observations. The Milky Way is a model for the Earth and the pressures you exerted on it are like the pressures exerted on the Earth. To use an analogy, The Chocolate is to the Milky Way as the Earth's Surface is to the Earth. The caramel is to the Milky Way as the Earth's interior is to the Earth.	
Observation 2: Downward Force		
Observation 3: Pulling Force		
Observation 4: Pushing Force		

Force & Plate Tectonics Background

Force is a pushing or pulling agency that makes objects change speed, change direction or stop. You were applying different forces to the Milky Way, much as forces act on the Earth. The force caused a change. There are two types of forces: Uniform force and Acceleration. Uniform force is when you are moving at a constant speed and direction or stopped. Acceleration is a non-uniform force. A common example of this is speeding up in a car or the act of stopping is technically also acceleration. Examples of force are gravity, friction and magnetism.

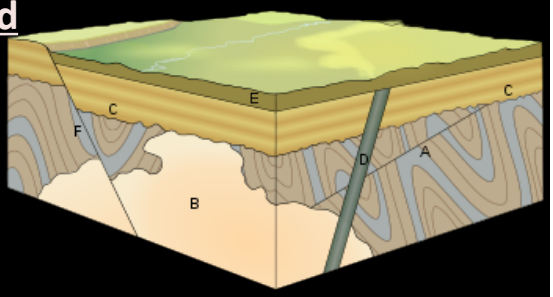


Plate tectonics is a theory which describes the large-scale movement of the Earth's crust. The Earth's crust is broken up into eight major tectonic plates. These plates move in relation to one another at one of three types of plate boundaries causing earthquakes, volcanoes and mountain-forming due to pushing, pulling, sliding or downward forces. If plates move toward each other the effects of the force differ from what happens when they move apart or slide along fault boundaries. Since the effects rarely are observed during one's lifetime, Geologists must look for indirect evidence by learning to read the relative age of rocks. Scientists can then piece together understanding of the Earth's geologic history.