

The background of the slide features a collection of laboratory glassware, including a round-bottom flask with a red liquid, a beaker with a blue liquid, a graduated cylinder with a green liquid, and a microscope, all rendered in a faded, semi-transparent style. The title text is overlaid on this background.

The Nature of Science

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Answering Questions

- The ancient Greeks believed that Helios, the god of the sun, rode across the sky in a chariot drawn by four winged horses.
- This belief helped them to explain their observation that the sun rose in the east and set in the west every day.



- **Observations:** Information gathered through any of our five senses or instruments that extend these senses.
- **Science** provides explanations and answers to questions raised by our observations.



Observations vs. Explanations

- Observations are sometimes referred to as facts.
- Consider two circus clowns on a see-saw. (pictured right)

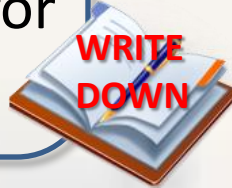
- We can observe that as one clown goes up, the other goes down.
 - Its is an observable fact.
- We cannot tell if one clown pushes the other up when he lands, or if one clown jumps up when the other clown lands.
 - That is an explanation. Not an observable fact.
 - Explanations cannot be observed. They are inferred.



Laws & Theories

Definitions

- Theory - an explanation based on observed fact (provides framework for hypotheses)



- Law - theory that has been upheld for a long time
 - laws can be modified to fit new observations.



Examples

- The sun is carried across the sky in a chariot drawn by four winged horses.



- The earth rotates on its axis, making it look like the sun is going around the earth. There are no horses and no chariot.

Branches of Science

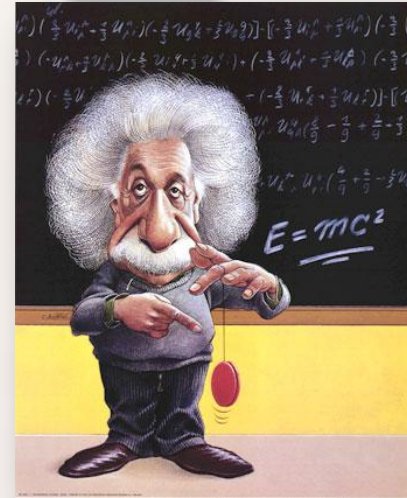
- Scientists answer all kinds of questions, but they tend to fall into three major categories or branches.
- Branches of Science
 - Life Science
 - Earth Science
 - Physical Science



Physical Science

- Physical Science deals with:

- Chemistry; and
- Physics



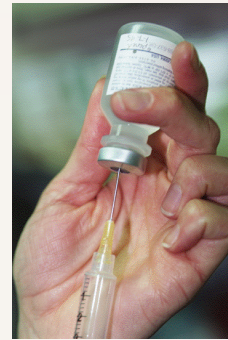
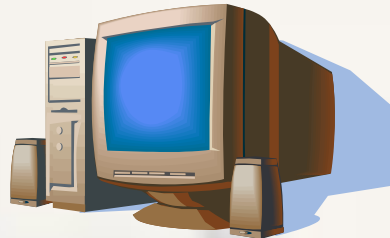
- This year we will cover the following topics in physics:

- **Topic 1: Nature of Science**
- **Topic 2: Measurement**
- **Topic 3: Motion**
- **Topic 4: Forces**
- **Topic 5: Fluids**
- **Topic 6: Energy**
- **Topic 7: Machines**
- **Topic 8: Heat**
- **Topic 9: Waves**
- **Topic 10: Sound**
- **Topic 11: Electromagnetism**
- **Topic 12: Light**

Technology

- Some common examples of technology are:

- Computers
- Vaccines
- Cell phones



- These would not exist if scientists did not acquire knowledge to help us make them.

- Technology is the application of science for practical benefits.

