

### 1.1 What is Physics?

---

---

---

---

---

---

---

### Objectives

- **Identify** activities and fields that involve the major areas within physics.
- **Describe** the processes of the scientific method.
- **Describe** the role of models and diagrams in physics.

---

---

---

---

---

---

---

### Physics is EVERYWHERE

- Mechanics
- Thermodynamics
- Optics

---

---

---

---

---

---

---

## Scientific Method

- We are going to use the 7 step model
- 1. State the Problem
- 2. Make observations
- 3. Form a Hypothesis
- 4. Experiment
- 5. Record and Analyze Data
- 6. State your Conclusion
- 7. Repeat and/or share Results

---

---

---

---

---

---

---

---

## State the Problem

- Before one can solve a problem, he/she must understand what the problem is and be able to state it.
  - To understand a problem and find the best answers, you must ask the right questions: Who? What? When? Where? Why? How?
  - One of the hardest steps of the scientific method

---

---

---

---

---

---

---

---

## Make Observations

- Gather Information
  - Again, Ask
    - Who?
    - What?
    - When?
    - Where?
    - Why?
    - How?

---

---

---

---

---

---

---

---

### Form a Hypothesis

- A **hypothesis** is an explanation that is based on prior scientific research or observations and that can be tested.

---

---

---

---

---

---

---

---

### Experiment

- Independent variable
  
- Dependent variable
  
- Control group

---

---

---

---

---

---

---

---

### Record AND Analyze Data

---

---

---

---

---

---

---

---

State your Conclusion

---

---

---

---

---

---

---

---

Repeat and/or Share

---

---

---

---

---

---

---

---

Controlled Experiment

- A **controlled experiment** tests only one factor at a time by using a comparison of a control group with an experimental group.

---

---

---

---

---

---

---

---

## Models

- A **model** is a pattern, plan, representation, or description designed to show the structure or workings of an object, system, or concept.

---

---

---

---

---

---

---

---

## System

- A set of particles or interacting components considered to be a distinct physical entity for the purpose of study is called a **system**.

---

---

---

---

---

---

---

---

## Experiment

You are trying to figure out what type of wood is the best for producing heat.

Experiment:

You select 3 different types of wood (each is the same mass and dryness). You burn each type of wood and record how much heat they produce.

---

---

---

---

---

---

---

---