# Objective

By the end of this lesson, you will be able to understand and apply key scientific concepts through engaging activities.

### **Materials and Prep**

- Pen and paper
- Internet access
- Optional: Science experiment kit (if available)

No specific prior knowledge is required for this lesson.

# Activities

- Activity 1: Research and Report Use the internet to research a scientific topic that interests you. Write a report summarizing your findings and include any relevant diagrams or images.
- Activity 2: Science Experiment If you have a science experiment kit, choose an experiment that you find intriguing and conduct it following the instructions provided. Take notes on your observations and results.
- Activity 3: Science Debate Choose a controversial scientific topic and prepare arguments for both sides. Engage in a debate with a family member or friend, presenting your viewpoints and supporting evidence.

# **Talking Points**

### Scientific Method

"The scientific method is a systematic approach used by scientists to investigate and understand the natural world. It involves making observations, forming hypotheses, conducting experiments, analyzing data, and drawing conclusions."

Importance of Peer Review

"Peer review is a crucial process in scientific research. It involves having experts in the field review and critique scientific studies before they are published. This helps ensure the accuracy and reliability of the findings."

• Role of Ethics in Science

"Ethics play a significant role in scientific research. Scientists must adhere to ethical guidelines to protect the rights and well-being of human and animal subjects, as well as to maintain integrity in their work."

### • Understanding Statistical Significance

"Statistical significance is a measure used to determine if the results of a study are meaningful. It helps scientists determine if the observed differences between groups are due to chance or if they are truly significant."

• Science and Technology

"Science and technology are closely intertwined. Advances in scientific knowledge often lead to the development of new technologies, which in turn enable further scientific discoveries."