

## Scientific Method

Learning Outcome A2

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- Design or conduct an experiment using the Scientific Method

### Student Achievement Indicators

- Formulate a testable hypothesis to investigate a scientific problem
- Formulate and carry out a repeatable, controlled procedure to test the hypothesis:
  - Identify controlled versus experimental variables
  - Identify the independent and dependent variables
  - Use control and experimental groups
  - Use a control
  - Use an appropriate sample size
- Observe, measure and record data
- Interpret results to draw conclusions
- Determine whether the conclusions support or reject the hypothesis
- Determine whether the experiment is reliable
- Use information and conclusions as a basis for further comparisons, investigations or analyses

### Review of Scientific Method

#### 1. Hypothesis

- An educated explanation of an observed phenomena based on accumulated factual information

#### 2. Inductive Reasoning

- Reasoning based on previous and current observations/data.
- This is used to create a hypothesis

#### 3. Deductive Reasoning

- Reasoning using to help us decide which data to collect

### Review of Scientific Method

#### 4. Control

- A sample in an experiment which goes through all steps of the experiment except the one being tested.

#### 5. Experimental Variable

- The variable being tested in the experiment (control is NOT subjected to this).

#### 6. Independent Variable

- The result or change that is observed