

## Identifying the Dependent and Independent Variables

1. Independent variable is a factor that is manipulated in an experiment. The experimenter controls whether or not subjects are exposed to the independent variable.
2. Dependent variable is measured to determine if the manipulation of the independent variable had any effect. To identify the dependent variable ask yourself, "What is actually being measured in the experiment?"

For example, to test a hypothesis that eating carrots improves vision, the experimenter would manipulate whether or not subjects ate carrots. Thus, eating carrots is the independent variable. Each subject's vision would be tested to see if carrot eating had any effect. Thus, vision is the dependent variable. The subjects assigned to eat carrots are in the experimental group, whereas subjects not eating carrots are in the control group.

*Identify the independent variable, dependent variable, experimental and control groups YOU MUST ALSO identify the Steps in the scientific method in the following studies.*

1. A group of college students were given a short course in speed-reading. The instructor was curious if a monetary incentive would influence performance on a reading test taken at the end of the course. Half the students were offered \$5 for obtaining a certain level of performance on the test, the other half were not offered money.

**Independent variable:**

**Dependent variable:**

**Experimental group:**

**Control group:**

**Scientific Method:**

- |    |    |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. |    |

2. A social psychologist thinks that people are more likely to conform to a large crowd than to a single person. To test this hypothesis, the social psychologist had either one person or five persons stand on a busy walking path on campus and look up. The psychologist stood nearby and counted the number of people passing by who also looked up.

**Independent variable:**

**Dependent variable:**

**Experimental group:**

**Control group:**

**Scientific Method:**

- |    |    |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. |    |

3. To test a new voice feature in a cockpit design a flight simulator was used. The simulator was programmed to give visual readings of flight information, or to give visual and auditory (voice) readings of flight information. All test pilots were put through a simulated emergency landing procedure, but were randomly assigned to the visual, or visual and auditory conditions. Flight experts rated each pilot's performance in the simulator on a scale of 1 (very poor) to 10 (excellent).

<b>Independent variable:</b>	<b>Dependent variable:</b>
<b>Experimental group:</b>	<b>Control group:</b>

**Scientific Method:**

- |    |    |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. |    |

4. A researcher is curious to find out what effect music has on people's level of relaxation. He suspects that listening to classical music will make people feel more calm and relaxed. He allows one group to listen to classical music for one hour, a second group listens to heavy metal music, and third group sit in a quiet room for one hour. Over a period of one hour, he monitors the heart rate of each participant in order to measure his or her level of relaxation.

<b>Independent variable:</b>	<b>Dependent variable:</b>
<b>Experimental group:</b>	<b>Control group:</b>

**Scientific Method:**

- |    |    |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. |    |

5. Create your own experiment, something you think we could do this year in Physical Science. Explain the parameters of the experiment outlining the design. Detail the control, independent variable, dependent variable, as well as the steps of the scientific method that we would need to follow. Then SELL your idea as to WHY I should allow this to occur in our class.