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Unit I  
The Nature of Science  
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I

## The Rabbit Experiment

**Objective:** Students will identify the parts of an experiment that demonstrate the scientific method.

**For review:** Give the definitions for each of the following terms:

- 1) control \_\_\_\_\_
- 2) constants \_\_\_\_\_
- 3) independent variable \_\_\_\_\_
- 4) dependent variable \_\_\_\_\_

**Directions:** Read the following passage and use the information in the reading to answer the questions below it.

A group of scientists decided to perform an experiment to test the effects of caffeine on the heart rate of female rabbits. The scientists chose 5 rabbits from the same “family” and administered different amounts of caffeine to 4 of the rabbits but the fifth rabbit received no caffeine. Each rabbit will have its beginning heart rate documented and after a 2 week period the heart rates will be taken again to see if there was any change. Each rabbit was caged separately from the others and they were all given equal amounts of water and food for the 2 week test period.

The grid below shows all of the results of the experiment.

Rabbit #	caffeine amt.	beginning heart rate	ending heart rate
1	2 mg	34 bpm**	35 bpm
2	4 mg	32 bpm	50 bpm
3	6 mg	30 bpm	60 bpm
4	8 mg	31 bpm	80 bpm
5	no caffeine	32 bpm	33 bpm

\*\*bpm= beats per minute

List the following components of this experiment:

- control \_\_\_\_\_  
constants \_\_\_\_\_  
independent variable \_\_\_\_\_  
dependent variable \_\_\_\_\_

**Hypothesis:** Suggest a possible hypothesis these scientists may have been using to create this experiment.

\_\_\_\_\_  
\_\_\_\_\_

**Graph:** Make a bar graph displaying the results of this experiment on graph paper. Make sure you give the graph a title, label both axes, independent and dependent variables would be located on the graph and put the proper numbers (data) where they belong.

**Conclusion:** (On the reverse side of this paper state purpose, procedure and results)