

The Scientific Method
EXPERIMENTAL DESIGN PRACTICE #1

Read the following description of this experiment and identify the elements of the experiment.

1. Sam wished to investigate how fertilizer run-off affects the growth of algae in freshwater lakes and streams. He set his experiment up in this way. He placed 900 ml of water into each of 5 1000 ml glass beakers. To each beaker he added 5 ml of water from a aquarium which contained a large concentration of algae. The beakers were placed under a grow light which was timed to provide 12 hours of light each day. Liquid fertilizer was added to the beakers in the following amounts: beaker 1 — no fertilizer, beaker 2 — 2 ml fertilizer, beaker 3 — 4 ml fertilizer, beaker 4 — 6 ml fertilizer, beaker 5 — 8 ml fertilizer. Each week a random sample from each of the beakers was examined under a microscope to get a count of the number of algal cells present.

1a. Independent Variable _____

1b. Dependent Variable _____

1c. Experimental Group _____

1d. Control Group _____

(Constants)
1e. Controlled Variables _____

1.f. Problem question _____

1.g. Hypothesis _____

Name _____

Class _____

Date _____

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EXPERIMENTAL DESIGN PRACTICE #2

Read the following description of this experiment and identify the elements of the experiment.

2. Brittany wanted to find out which wheels were best for her skateboard. She purchased 4 sets of new wheels of different brands. She and a friend set up a slalom course on her driveway. Brittany rode through the course 5 times on each set of wheels. Her friend timed her with a stopwatch and recorded the times. They then averaged the times for each wheel.

2a. Independent Variable _____

2b. Dependent Variable _____

2c. Experimental Group _____

2d. Control Group _____
~~(constants)~~

2e. Controlled Variables _____
(Constants)

2f. Problem question _____

2g. Hypothesis _____