

Name Key

Date \_\_\_\_\_

### Identifying Independent and Dependent Variable

**Directions:** Write a research question for each scenario. Next, determine the Independent Variables (IV), Dependent Variables (DV), Constants, and Controls from the following science experiments.

- **Research Question:** Problem you are trying to solve in the form of a question.
- **Independent Variable (IV):** Factor the experimenter changes.
- **Dependent Variable (DV):** Factor the experimenter measures.
- **Constants:** Factors that are kept the same.
- **Control:** Thing to compare against to see if Independent Variable has any affect.

- 1) A person counts the number of flowers she sees on different types of plants. She records data every week.

Q: Does the type of plant affect the number of flowers it has?
IV: Type of plant
DV: Number of flowers
Constants: Same girl counting
Control: The number of flowers on day one

- 2) You water some plants with 4 different types of water (salt water, regular water, sugar water and distilled water). After a two-week period, the height of the plants is measured.

Q: Which type of water is best for plant growth?
IV: Type of water
DV: Height of plant
Constants: Amount of water, Amount of light, Temperature, Type of plant
Control: Regular water

- 3) Inside a greenhouse, different types of trees are kept at 3 different humidity levels. These are left for 3 years. One tree is left outside in normal conditions. The heights of the trees are measured once a week.

Q: Which humidity level is best for tree growth?
IV: Humidity levels
DV: Height of tree
Constants: Type of tree
Control: Normal Conditions

- 4) Green pea plants are given different amounts of water for a three-week period. First pea plant receives 400 milliliters. Second pea plant receives 200 milliliters. Third pea plant receives 100 milliliters. Fourth pea plant does not receive any extra water; the plant only receives natural ways of receiving water. The height of the pea plants is recorded daily.

Q:	<del>How</del> How much water is best for pea plant growth?
IV:	Amount of water
DV:	Height of plant
Constants:	Type of plant, Temperature of water,
Control:	Natural way of receiving water

- 5) One tank of goldfish is fed the normal amount, which is once a day; a second tank is fed twice a day; and a third tank is fed four times a day during a six-week study. The fishes' body fat is recorded daily.

Q:	Does <del>the</del> <sup>the</sup> amount of times a day a fish is fed affect its body fat?
IV:	Amount of food fed / How many times a day the fish is fed
DV:	Amount of body fat
Constants:	Temperature of <del>fish</del> <sup>water</sup> , Type of food, Type of fish,
Control:	Normal amount of food