**Station #4: Scientific Inquiry Practice**

**DIRECTIONS: ON YOUR OWN SHEET OF PAPER for each scenario below, identify the following:**

* **independent variable (IV) = the variable that is changed on purpose OR what “I” can control as the experimenter and change OR what causes the change in the experiment**
* **dependent variable (DV) = the variable that changes because of the IV OR what is being measured OR data/measurement/observations**
* **constants (C) (AT LEAST 2) = what stays the same on purpose in an experiment**
* **problem (written in the proper form) = the purpose of the experiment (specific, testable, in the form of a question)**
* **hypothesis (written in the proper form) = answers the problem question (If IV, then DV because)**
* **title (written in the proper form; CAPITALIZED) = The Effect of the IV on the DV**

**Scenarios:**

1. **Billy is planning an inquiry about different brands of golf balls. He found many different brands of golf balls when he played and knew that golf balls ranged in price. He wanted to design a test to see if golf balls traveled straighter if they were more expensive. Billy believed his inquiry would show that expensive golf balls rolled across the green straighter to the hole than less expensive balls.**

**IV =**

**DV =**

**C = (at least 2)**

**Problem =**

**Hypothesis =**

**Title =**

1. **Stephen planned an experiment around seeing what effect the amount of fertilizer used on a lawn would have on the weight of the grass cut from the lawn during the summer.**

**IV =**

**DV =**

**C = (at least 2)**

**Problem =**

**Hypothesis =**

**Title =**

1. **Zeke surprised his mother by voluntarily doing the dishes! Unfortunately, he used laundry detergent, and soap suds gushed everywhere. That is when Zeke learned that different cleaning products produce very different amounts of suds. He studied the properties of laundry detergent, powdered hand soap, and liquid hand soap. Zeke put 500 mL of distilled water into 4 empty, clear, 1 liter soda bottles. He added a different kind of cleaning detergent to each, shook the bottle for 30 seconds, and then measured the height of the suds.**

**IV =**

**DV =**

**C = (at least 2)**

**Problem =**

**Hypothesis =**

**Title =**

**Answers to Station #4: Scientific Inquiry Practice**

**DIRECTIONS: Make corrections to the ones that you have completed. Please make sure that you are asking questions if you do not understand why you got things wrong.**

1. **IV = price of golf balls (or brand)**

**DV = how straight a golf ball flew (how straight the ball rolled on the green)**

**C = same club used; same surface ball is rolling on; same effort in contacting the ball; same person hitting the ball**

**Problem = Does the price of golf balls affect how straight they will roll on a green?**

**Hypothesis = If the golf balls are more expensive, then they will roll straighter because they are better quality and have a smoother surface.**

**Title: The Effect of the Golf Ball Price on How Straight the Balls Roll**

1. **IV = amount of fertilizer used**

**DV = weight of the grass cut (how much the grass grew)**

**C = same brand of fertilizer, same lawn mower cutting at the same height, same amount of water given**

**Problem = What effect does the amount of fertilizer used on a lawn have on the weight of the grass cut during the summer?**

**Hypothesis: If more fertilizer is used, then the weight of the grass cut will increase because the grass will have more nutrients to grow.**

**Title: The Effect of the Amount of Fertilizer Used on the Weight of the Grass Cut from the Lawn during the Summer.**

1. **IV = type of detergent, powdered hand soap, or liquid hand soap**

**DV = the height of the suds**

**C = amount of water, bottles, length of the shaking, how much detergent/soap**

**Problem = What effect does the type of soap have on the amount of suds produced?**

**Hypothesis: If laundry detergent is mixed with water, then it will produce the largest amount of suds because that is what got Zeke into trouble.**

**Title: The Effect of the Type of Detergent on the Amount of Suds**