**Station #3: 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. **Mitch is planning an inquiry about gardening. He found many different types of tomato seeds at the gardening store and the packs of seed were sold for different prices. He wanted to design a test to see if the more expensive tomato seeds would grow tomatoes with fewer seeds. Mitch believed their inquiry would show that expensive tomato seeds would grow plants which produced tomatoes with fewer seeds.**

**IV =**

**DV =**

**C = (at least 2)**

**Problem =**

**Hypothesis =**

**Title =**

1. **Susie is planning an inquiry about basketballs. Susie noticed that the basketball seems bouncier at the recreation center gym than on the driveway. Susie wonders if the basketball is more bouncy in the gym because the recreation center gym is always heated. When she plays outside the temperatures are sometimes cool. She plans on measuring the height of the basketball’s bounces after the ball has been sitting in the freezer, sitting at room temperature, and after the basketball is warmed by a hair dryer. Susie thinks the warmed basketball will bounce the highest.**

**IV =**

**DV =**

**C = (at least 2)**

**Problem =**

**Hypothesis =**

**Title =**

1. **While attending a wedding, Robert noticed that the pitch of the sound made from tapping silverware on glasses filled with water changed depending on how much water was in the glass. He wondered what the effect of the amount of water in a drinking glass on the range of pitch made when tapping on the top edge of the glass with a metal spoon was and decided to design an experiment.**

**IV =**

**DV =**

**C = (at least 2)**

**Problem =**

**Hypothesis =**

**Title =**

**Answers to Station #3: 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 tomato seeds**

**DV = # of seeds in tomatoes (amount of seeds)**

**C = same conditions for planting and growing the tomato seeds (same amount of light, same amount of water, same soil, same weather conditions, etc.)**

**Problem: Do more expensive seeds produce tomatoes with fewer seeds?**

**Hypothesis: If the tomato seeds are more expensive, then the tomatoes produced will have fewer seeds because the tomatoes are a higher quality.**

**Title: The Effect of the Tomato Seed Price on the Number of Seeds in the Tomatoes**

1. **IV = air temperature inside of the basketball**

**DV = bounce height**

**C = same spot on floor to bounce; same ball; same amount of air**

**Problem: What basketball air temperature will allow it to bounce the highest?**

**Hypothesis: If the warmed basketball is used, then it will bounce the highest because the air molecules inside will have more energy.**

**Title: The Effect of the Basketball Air Temperature on the Bounce Height**

1. **IV = amount of water in the glass**

**DV = the pitch of the sound made by tapping a metal spoon against the glass**

**C = the type of spoon used, the type of glass used, the source of water, the person measuring the pitch of the sound**

**Problem: What effect does the amount of water have on the pitch of the sound made by tapping a metal spoon on a glass?**

**Hypothesis: If there is more water in the glass, then the pitch of the sound made by tapping a metal spoon on the glass will be lower because there is not as much room on the glass for the sound to vibrate.**

**Title: The Effect of the Amount of Water on the Pitch of the Sound Made By Tapping a Metal Spoon on the Glass**