**Hypothesis Writing Practice Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Instructions: Read the scenario below and write a hypothesis for each scenario. Use the hypothesis proficiency scale to rate your hypothesis.

*FISH EGGS:* A scientist knows that the percent of fish eggs that hatch is affected by the temperature of the water in an aquarium. She is attempting to identify which water temperature will cause the highest percentage of fish eggs to hatch. The scientist sets up 5 aquariums at the following temperatures: 10°C, 20°C, 30°C, 40°C, and 50°C. She adds 50 fish eggs to each aquarium and records the number of eggs that hatch in each aquarium.

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*DNA Extraction:* Strawberries are soft and easy to pulverize. Strawberries have large genomes; they are octoploid, which means they have eight of each type of chromosome in each cell. Thus, strawberries are an exceptional fruit to use in DNA extraction labs. The soap helps to dissolve the phospholipid bilayers of the cell membrane and organelles. The salt is used to break up protein chains that bind around the nucleic acids. DNA is not soluble in ethanol. The colder the ethanol, the less soluble the DNA will be in it. Thus make sure to keep the ethanol in the freezer or on ice.

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*Frogs and Acid Rain:*  "Acid rain" is a broad term referring to a mixture of wet material from the atmosphere containing higher than normal amounts of nitric and sulfuric acids. As this “acidic water” flows over and through the ground, it affects a variety of plants and animals. The strength of the effects depends on how acidic the water is, the chemistry of the soils involved, and the types of fish, trees, and other living things that rely on the water.

You recently read an article stating there was a decline in the frog populations in the area. Is acid rain causing the decline in frog populations?

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*FIRE EXTINGUISHERS:* A firefighter is trying to figure out which type of fire extinguisher (CO2, water, or dry chemical) will put out fires the fastest. Think about the issue being tested and imagine an appropriate experiment to determine which type of fire extinguisher can extinguish fires the fastest. Then, identify the key elements of the experimental design listed below.

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