

Name \_\_\_\_\_  
Period \_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

# 1 • Introduction to Chemistry

## SCIENTIFIC METHOD

**DIRECTIONS:** Use each description and/or data table to help you identify or describe: 1) any independent variable(s), 2) the best dependent variable, 3) at least 3 variables that should be controlled or held constant, and 4) any control group(s) in the experiment. Make sure your answers are specific. Keep in mind that not all experiments have a control group.

1. **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.

Independent variable(s): \_\_\_\_\_

Dependent variable: \_\_\_\_\_

List 3 variables that should be controlled (held constant). \_\_\_\_\_

\_\_\_\_\_

Describe any control group(s) in the experiment (if one doesn't exist, leave this section blank).

\_\_\_\_\_

\_\_\_\_\_

2. **MOUThWASH:** The makers of brand A mouthwash want to prove that their mouthwash kills more bacteria than the other 4 leading brands of mouthwash. They organize 60 test subjects into 6 groups of 10 test subjects. The data for the experiment is shown to the right.

mouthwash used	time mouthwash was in mouth	# of bacteria in mouth (average)
none	---	135
A	60 sec.	23
B	60 sec.	170
C	60 sec.	84
D	60 sec.	39
E	60 sec.	81

Independent variable(s): \_\_\_\_\_

Dependent variable: \_\_\_\_\_

List 3 variables that should be controlled (held constant). \_\_\_\_\_

\_\_\_\_\_

Describe any control group(s) in the experiment (if one doesn't exist, leave this section blank).

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