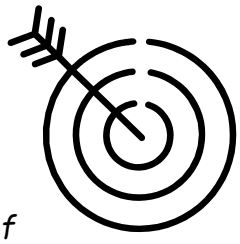
Name _____ Date _____ Block _____

Ping-Pong Target Lab



Purpose: The purpose of this lab is to assess your skills as a scientist. You must be able to write a hypothesis, conduct a lab, collect and display data correctly, and analyze your data.

Problem: *At what distance, can a middle school student hit as target 50% of the time?*

Materials:

Water Gun	Ping Pong Balls	Ball Stand

Safety:

DO NOT shoot the water gun at anything but the target. Failure to follow directions will result in a zero, an alternate assignment, and an ASD for horseplay in the lab.

Directions for Part I.

1. Each group should select a recorder, a measurer, and a shooter or shooters.
2. Position a ping-pong ball on each tee.
3. Measure distances of 1, 3, 6, 9, 12 and 15 feet from the wooden block.
4. Each group should then shoot at the ping-pong balls 10 times from each distance. Score the shot as a hit if the ball is knocked from the tee. After two shots, replace any balls that have been knocked from their tees. Record the hits from each distance.
5. Create a bar graph.

Research

Distance	1 ft.	3 ft.	6 ft	9 ft	12 ft	15 ft
How many times you hit the target.						
Class Average						

6.

What type of a relationship) positive, negative, no relationship) was there between the independent & dependent variables?

_____

Explain

_____

Part II.

List all variables that could influence results. Some examples include the following: Was wind a factor? Did shooters all use the same gun? Did shooters practice? Were shooters male or female?

_____

_____

_____

Create a hypothesis using only one of the above as an independent variable.

I think

_____

because _____

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4. Each group should then shoot at the ping-pong balls 10 times from each distance. Score the shot as a hit if the ball is knocked from the tee. After two shots, replace any balls that have been knocked from their tees. Record the hits from each distance.
5. Make sure to eliminate all other variables except for the one you identified in your hypothesis.
6. Create a bar graph.

Data:

Distance	1 ft.	3 ft.	6 ft	9 ft	12 ft	15 ft
How many times you hit the target.						

Graph:

Questions:

1. Would you expect the same results if a middle school science class in California repeated your experiment? _____
   Why?
   _____
   _____
2. Would you expect the same results if a fourth grade class in Maine repeated your experiment? _____
   Why?
   _____
   _____
3. Describe what inferences you can draw from your experiment, and define the population to which your inferences apply.
   _____
   _____
4. List the variables that students tested. Which variables appear to have an impact on the results?

_____

_____

5. Would the results have been different if the target goal was 75%? _____

   Why?

_____

_____

6. How could you change this experiment?

_____

Conclusion:

_____

_____

_____

_____

_____

_____

_____

_____

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