Name _____ Period _____ Date _____

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Lesson 4: Elastic Toy Investigation: Post Lab Assessment

Activity 4.3

Purpose

Demonstrate your understanding of the process used in the lab by answering the following questions:

Carol and Amy want to investigate how the number of winds on a wind-up robot affects the number of steps the robot can take. The girls decided to test 2 wind-ups, 4 wind-ups, and 6 wind-ups. Carol and Amy used the same robot toy for their entire experiment. They always tested their robot on the tile floor of their classroom. They also chose to work in a place on the floor that had no incline. Carol and Amy did three trials for their experiment. Here is their data table below:

Number of Wind-ups versus Number of Steps (By Carol and Amy)

Number of wind-ups	Trial 1 Steps	Trial 2 Steps	Trial 3 Steps	Average # of Steps
2 wind-ups	*5 steps*	*4 steps*	*5 steps*	
4 wind-ups	*10 steps*	*12 steps*	*13 steps*	
6 wind-ups	*21 steps*	*18 steps*	*19 steps*	

1. Which of the following is an **independent variable** of the experiment? (Circle all that apply)
   a. The number of steps the robot takes
   b. The floor has no incline
   c. The number of wind-ups on the robot
   d. The floor's material is tile
   e. The toy robot is always the same

2. Which of the following is a **dependent variable** of the experiment? (Circle all that apply)
   a. The number of steps the robot takes
   b. The floor has no incline
   c. The number of wind-ups on the robot
   d. The floor's material is tile
   e. The toy robot is always the same

3. Which of the following is a **controlled variable** of the experiment? (Circle all that apply)
   a. The number of steps the robot takes
   b. The floor has no incline
   c. The number of wind-ups on the robot
   d. The floor's material is tile
   e. The toy robot is always the same

4. Calculate the average robot steps and **complete Carol and Amy's data table**. Please include proper **unit**.

5. What is a conclusion that Carol and Amy may make from their data table?
    a. The greater the number of wind-ups, the less steps the robot takes.
    b. The greater the number of wind-ups, the more steps the robot takes.
    c. The number of wind-ups has no impact on the number of steps the robot takes.
    d. There is not enough information to form a conclusion.

6. Luke and John did the same experiment as Carol and Amy. Below is their data table. They are confused about why their robot's wind-ups do not show the same pattern as Carol and Amy's data. **Based on John and Luke's data table**, can you give them **two pieces of <u>specific</u> advice** about what they can do to improve or correct their experiment?

Number of Wind-ups versus Number of Steps (By Luke and John)

Number of wind-ups	**Trial 1 Steps**	**Trial 2 Steps**	**Trial 3 Steps**	**Average # of Steps**
2 wind-ups	*4 steps*	*4 steps*	*5 steps*	*13 steps*
4 wind-ups	*10 steps*	*12 steps*	*2 steps*	*8 steps*
6 wind-ups	*20 steps*	*22 steps*	*21 steps*	*21 steps*

Advice 1:

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Advice: 2:

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