

Name \_\_\_\_\_



## Force & Acceleration

**Problem:** To observe the cause of changes in motion.

**Define force:**

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**Materials:**

60 cm string	Toy car	Paper clip
Weights	Stop watch	Triple beam balance

**Procedure:**

1. Tie one end of the string to the paper clip. Tie the other end to the toy car.
2. Place your car on the table and hang the paper-clip hook over the edge of the table.
3. You have been given several different weights. Use the triple beam balance to find the mass of each weight. Record this information.
4. Predict how the car will move as the different weights are hung from the paper-clip hook and allowed to fall to the floor. Record your predictions in the data section.
5. Conduct your investigation, and then record your observations.
6. Explain how you conducted your investigation (what did you do?)

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**Data:**

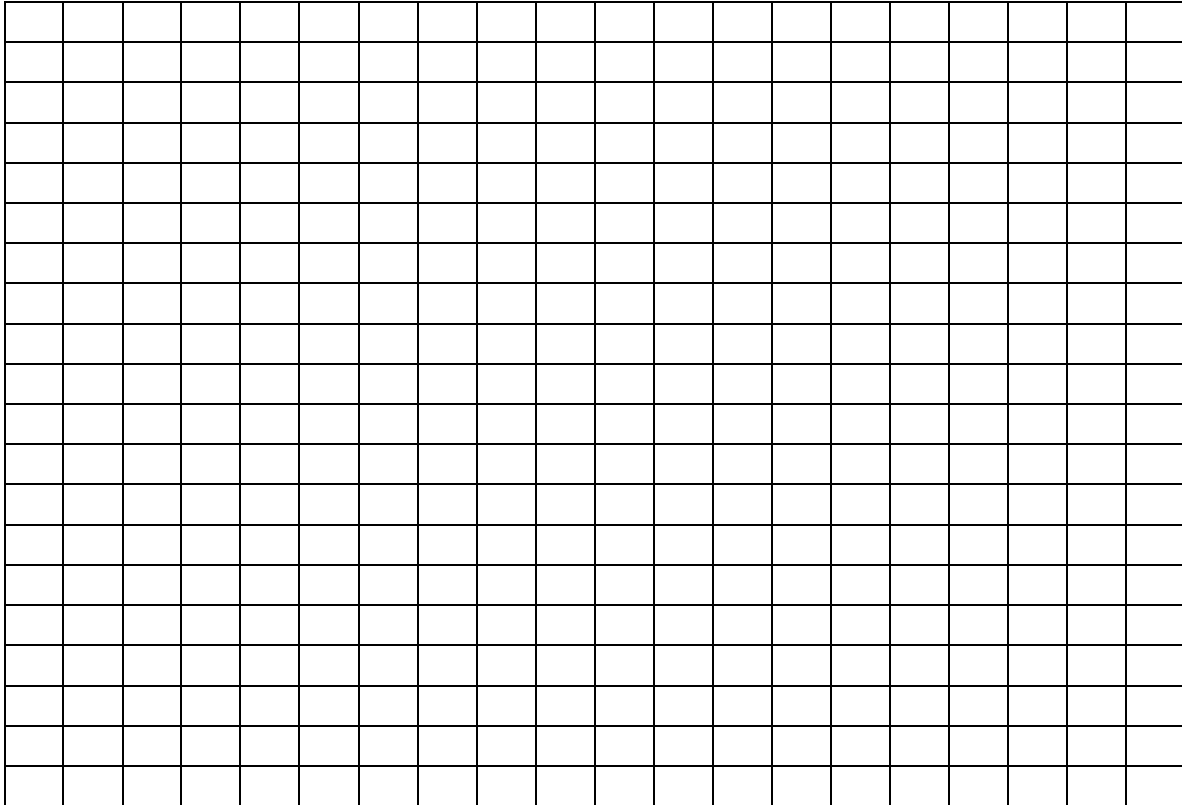
Mass of weight (g)	Predictions	Observations

**Data Analysis:**

For each weight, draw a diagram showing ALL of the forces acting on it as it falls to the floor.

Make a line graph to show the relationship between the **mass of the weight** and the **speed** at which it falls.

Title: \_\_\_\_\_



**REMEMBER:**

The independent variable goes on the X-axis.

The dependent variable goes on the Y-axis.

Before you plot your graph – **THINK!** What did you change, what did you measure?

**Questions:**

1. Describe the forces that caused acceleration in this investigation.

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2. Identify the forces that:

- a. Bring a baseball to rest as it rolls across a field –

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- b. Launch a rocket –

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3. Explain why this investigation is experimental, rather than descriptive research.

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4. What was the independent variable in this investigation?

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5. What was the dependent variable in this investigation?

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