Learning the Scientific Method with Paper Rockets

Name: _____

Date: _____

Student worksheet

Directions: Fill in the sections below as you work through the scientific method using paper rockets.

IDEA STARTERS

- Why, how, when, where, what, which
- Speed, distance, height, time
- Length, diameter (width), shape, quantity (number of)
- Rocket parts: fins, nose, body

1. Write down at least three questions you have about rockets. If you are stuck, try using some of the words or ideas from the Idea Starters box.

2. Circle which of your questions can be explored using the straw rocket model. If there are none, add a question that can be. Choose one of the circled questions to continue exploring.

3. Research rockets using books or the internet. Write down at least two things you learned that may help answer your question.

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4. Identify the variables you will explore:

Independent Variable (what I change)	**Dependent Variable** (what I measure/observe)	**Controlled Variables** (what I need to keep the same)

5. Make a prediction about how changing the independent variable will change the dependent variable. **Example of a prediction:** *The more fuel a rocket has, the farther it will travel.* (Note: This question cannot be tested with the paper rocket models because they do not use fuel.)

6. Use what you learned about rockets to explain why you think your prediction might be true. Together, your reasons and your prediction are called your **hypothesis**. A hypothesis is a testable explanation for how something works.

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7. Write down the procedure you will follow to do your experiment. Make sure your procedure includes all the elements from the checkbox on the right.

	Procedure checklist ☐ Materials you need ☐ Step-by-step instructions ☐ How you will change the independent variable ☐ How you will measure the dependent variable ☐ Number of trials (repeats of the experiment)

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8. Make a table to record your data.

	Data table checklist ☐ Label columns and rows ☐ Include units ☐ Include space to calculate an average

9. Do your experiment and fill in your data table.

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10. Make a graph of the data from your table.

	Graph checklist ☐ Label X and Y axes ☐ Include units

11. Draw conclusions from your experiment. Write one paragraph explaining whether your results support your hypothesis. If your results did not match your prediction, why do you think this occurred? Can you explain your results?