Learning the Scientific Method with Paper Rockets

Name: _____

Date: _____ Per. ____

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 could test about paper rockets. If you are stuck, try using some of the words or ideas from the Idea Starters box.

2. Circle which question you will explore using the paper rocket model.

3. Vocabulary: Define as it pertains to flight.

   Thrust -

   Drag -

   Lift -

   Weight -

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. Write the hypothesis. (Make a prediction about how changing the independent variable will change the dependent variable.)

6. In the space below, write out the **material list** needed to carry out the investigation.

7. Using google doc, **plan out the procedure** for experiment by listing the steps of the experiment individually as numbered steps. ***This procedure must be submitted to the teacher for approval before actually doing the experiment.*** This procedure should be written in such a way that another person could read the steps and easily perform the experiment. Once teacher approval has been received, proceed by setting up and carrying out the procedure as written.

   Teacher Approval: _____

Procedure checklist

- ☐ Step-by-step instructions
- ☐ How will the independent variable be changed?
- ☐ How will the dependent variable be measured?
- ☐ Number of trials (repeats of experiment)

8. **Recording Information:** As a scientist carries out an experiment, data must be collected and recorded. Design and draw a data table that will be suitable to record the data collected in this experiment.

Data table checklist

- ☐ Label columns
- ☐ Label rows
- ☐ Include units
- ☐ Include total and average of trials

9. **Graph the data** using a bar graph.

10. **Form a conclusion:** At the completion of the experiment, the data must be analyzed and interpreted to form a conclusion. Using google doc, write a conclusion paragraph.