Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hr \_\_\_\_\_

**Scientific Process - Stomp Rockets**

**Learning targets:**

* I can identify the steps of the Scientific Process/Engineering Design
* I can state a hypothesis including the planned variable and the predicted outcome. This will follow the correct “if...then… because...” format.

**Question:** How can you make the rocket go farther?

**Hypothesis:** If we use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ then it will go farther because \_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Materials: (per rocket)**

1 sheet of paper

Fin and nose-cone material (to be determined by class)

Hot glue

Tape

Pencil

Random Decorating Materials

Stomp Rocket Launcher

**Procedure:**

Step 1: Review Scientific Process as a class

Step 2: Come up with 3 ways to change the rocket that might make it go farther

Step 3: Find a partner to compare your changes, pick which 3 you like the best

Step 4: Share out ideas as a class and pick favorite 6

Step 5: Create a Data Table

Step 5: Count off 1 through 6: This will be your group. Each student will build their own rocket (with help from other members)

Step 6: Watch teacher demo for tube and nose-cone

Step 7: Test rockets

Step 8: Record data in Data Table

Step 9: Create a graph using data, explain if your hypothesis was right or wrong

Step 10: Use analysis to make your conclusion

**Data Table:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Distance 1**  **(in meters)** | **Distance 2 (in meters)** | **Distance 3 (in meters)** | **My Average (in meters)** | **Group Average** |
| **My Group - Control** |  |  |  |  |  |
| **My Group -** |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**These boxes (↖) are for the other groups!**

**Analysis:**

Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Create a Graph from the information in your data table. Graph the average for each group. The independent variable should go on the X - axis (Bottom) and the dependent variable should be on the Y-axis (side). Make sure your graph has a title, both variables are labeled, and there is a key.

**Conclusion:**

* **Explain** why your hypothesis was right or wrong

* What were some errors that changed your results?
* Make a prediction based on a new change to the independent variable.
* Give two ways to change the experiment in order to make it better