TITLE PAGE (Due 11/7!)

Have a two-part title. The first part of the title should be your hook to grab the attention of your audience. The second part should tell what your experiment is really about.

Don’t forget the information at the bottom of the page. And don’t forget to include the header on the following pages.

*For example:*

Sink or Swim!

How Many

Washer “Passengers”

Can a Paper Cup “Lifeboat” Hold?

Your first and last name

Mrs. Kragen

Fall 2016

QUESTION (Due 11/7!)

Write an experimental question following this or a similar format:

How does the (independent variable) affect the (dependent variable), measured by (units of measure)?

*For example:*

How does the height of the paper cup “lifeboat” affect the number of “passengers” it can carry before it sinks, measured by washers carefully added one at a time?

HYPOTHESIS (Due 11/7!)

Write a single sentence telling what you believe will happen and why.

*For example:*

The higher the sides of the paper cup boat, the more “passengers” it will carry because it has a great capacity.

MATERIALS AND EQUIPMENT (Due 11/7!)

List all the materials you need. The more detailed and exact, the better.

*For example:*

8 oz. paper cup cut 1-cm high

8 oz. paper cup cut 2-cm high

8 oz. paper cup cut 3-cm high

8 oz. paper cup cut 4-cm high

8 oz. paper cup cut 5-cm high

one gallon plastic basin

water

100 identical washers

PROCEDURE (Due 11/7!)

1. In a numbered list, tell everything someone would have to do to complete your experiment.
2. Write everything in order.
3. Make it like a recipe!

*For example:*

1. Half fill the basin with water.
2. Put the 1-cm high paper cup in the basin.
3. Carefully add washers until the cup sinks.
4. Remove the cup, take out the washers, dry the cup, and repeat the experiment.
5. Do the experiment 5 times, noting the number of washers the cup holds each time.
6. Find the average number of washer the 1-cm high cup held.
7. Repeat the process with the 2, 3, 4, and 5-cm high cups.

EXPERIMENTAL DATA (Due 11/21!)

Make a chart to record your data *as you collect it!*

Fill the data in while you are doing your experiment.

Don’t change the data later. (Use pen!)

*For example:*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Number of washers held before sinking** | **first try** | **second try** | **third try** | **fourth try** | **fifth try** | **average** |
| **1-cm high cup** | 3 | 5 | 2 | 1 | 4 | **3** |
| **2-cm high cup** | 16 | 18 | 19 | 15 | 21 | **22** |
| **3-cm high cup** | 45 | 48 | 32 | 51 | 43 | **54.4** |
| **4-cm high cup** | 71 | 63 | 52 | 75 | 69 | **66** |
| **5-cm high cup** | 84 | 79 | 82 | 63 | 92 | **80** |

GRAPH OF DATA (Due 11/21!)

Use Excel to make one graph to show the 5 data points for each variable.

Use Excel to make one graph to show the averages for the data.

*For example:*

ANALYSIS OF RESULTS (Due 12/5!)

Write a paragraph about what you observed.

Write a paragraph about your data. What do your tables/graphs/diagrams show?

Write a paragraph about any problems you had.

Write a paragraph about how you could improve your experiment

CONCLUSION (Due 12/5!)

Write one paragraph including the following points:

* State whether your hypothesis was correct or incorrect.
* Explain how your data proves or disproves your hypothesis, citing *both* high *and* low data points.
* Add an “overall” statement.
* Add reasoning to explain *why* the results happened the way they did.

*For example:*

My hypothesis was correct. The higher the sides of the paper cup boats, the more “passengers” they held before they sank. On average, my 1-cm high cup could hold only 3 washers before sinking. In contrast, on average, the 5-cm cup could hold 80 washers before sinking. Overall, the 5-cm cup could hold more than 25 times as many washers! The 5-cm cup could hold a lot more water than the 1-cm cup. It had a greater capacity. It makes sense it could support more washers before sinking.

Write one paragraph including the following points:

* Explain what you learned from doing your experiment.
* Explain why your experiment is important.
* Explain how it relates to real life.

Write one paragraph about any further questions you have. Suggest any possible extensions to your experiment.