**Jelly Side Down**  Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objective**: Design, execute and present an experiment using the steps of the scientific method.

**Background Information:**  
It is a busy Monday morning. Your toast just popped out of the toaster. You butter it. You are putting grape jelly on it. Then it happens. As you are picking up the toast up, it slides off the table and lands jelly side down on the floor! !%!#@#$ Another typical Monday. Why does toast always seem to land jelly side down? Or does it always land jelly side up? How could you find out? Complete the following activity to see how scientists conduct experiments to find out information about the natural world and to find out if your toast really does land jelly side down.

Scientists are interested in explaining how the natural world works. They observe things in the world that they do not understand and they ask questions. Scientists design experiments to find answers to their questions. Scientists provide results of their experiments to other scientists by writing reports that are put into science magazines, called journals. Other scientists, and the general public, read the reports and decide if the scientist’s experimental work and conclusions were correctly interpreted. Over the years scientists have come up with a standard procedure, called the scientific method, for designing experiments. The scientific method is a set of scientific processes that scientists use to solve problems observed in the world around them. It is the job of a scientist to assemble a plan using the scientific method to solve a problem.

What causes toast to land jelly side down??? Please come up with **four** different ways you could test if toast always lands jelly side down.

1.

2.

3.

4.

**Directions**

1. **Design an experiment to test one of the variables that you came up with.**

\*\*Remember a good experiment has only one independent variable in each trial, multiple trials to test the independent variable, constants, and one dependent variable!!!!

1. Your experiments should have complete step by step instructions with data collection and a graph.
2. Your experiment must be approved by your instructor.

**Problem:**

**Hypothesis (If, then, because):**

**Independent Variable:**

**Dependent Variable:**

**Constant Variables (List at least three):**

**Experimental Set-up (labeled diagram):**

**Procedure (numbered steps format):**

**Teacher Signature required here: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Data:**

**Graphing Requirements:**

1. **Labeled (x and y axis, title, include all units)**
2. **Graph format is appropriate for data (bar, line, scatter plot)**
3. **Data is neatly plotted**

**Conclusion: (Write in paragraph form)**

* Discusses support or non-support of hypothesis through data analysis (2 pts)
* Based on knowledge (may be researched with citations) **WHY** did you see the results you did. If results were inaccurate explain what should’ve happened and why (2 pts)
* Relates valid sources of error (2-3) from data collection or lab procedure, how the errors affected the data and ways they could have been prevented (2 pt) (measuring, calculations are not valid sources of error)
* Explain its importance in life or the unit of study (1 pts)