**Sample Research Plan #3**

**A. Question**

Does the size of a marshmallow effect how quickly it expands?

**B. Hypothesis**

If I use the miniature marshmallow, then it will expand the fastest, because there is less material to melt and expand.

**C. Procedure**

1. Set out all materials next to your microwave.
2. Take one plate, and put a miniature marshmallow on it.
3. Set the microwave for five minutes.
4. Put the plate with the marshmallow on it into the microwave.
5. Start the microwave and the stopwatch at the same time.
6. Once the marshmallow starts to expand, stop the microwave and the stopwatch, at the same time.
7. Use your pencil/pen to record times in table.
8. Repeat steps 1-7, with medium and jumbo marshmallows, three to five times each, and five minutes after each other.
9. Find the average time for each size of marshmallows.
10. Chose the smaller average time, to determine which marshmallow size expands the fastest.

**Risk**

I will not let anyone else near the microwave when the marshmallow is in it, in case it randomly explodes. It could burn you if you touch it.

**Data Analysis**

I will be recording the time the marshmallow is in the microwave, what number the marshmallow is, the size of the marshmallow, and what the average of the different sizes are.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Time the marshmallow is in the microwave | Number the marshmallow is | Size of the marshmallow | Average |  |
|  | 1 | Miniature |  |  |
|  | 1 | Medium |  |  |
|  | 1 | Jumbo |  |  |

**E. Biblography**

Mulvaney, Steven. "Key S'mores Ingredient a Product of Extrusion, Biopolymer Gelling." Cornell Center for Materials Research. Clark Hall of Science, n.d. Web. 2 Nov. 2013. <http://www.ccmr.cornell.edu/education/ask/?quid=884>.

Jet Puffed Miniature Marshmallow Bag. 1 Nov. 2013

Jet Puffed Medium Marshmallow Bag. 1 Nov. 2013

Jet Puffed Jumbo Marshmallow Bag. 1 Nov. 2013

General Electric Co. 1 Nov. 2013