Scientific Procedure for Experiment: FrankenCake

1. Question: How does wheat affect baking flour in the cupcake recipe?
2. Hypothesis: Based on the prior knowledge from class on wheat, the internal structure of wheat (endosperm, germ, and bran), and the link between gluten, protein and endosperm, the hypothesis is as follows:

If the wheat used makes flour with a high protein/gluten level, then protein will act as a more stable and firm agent in the batter and the cupcakes will have the consistency of bread.

1. Variables:
   * All purpose flour
   * Gluten flour
   * Gluten free flour
   * Pastry flour
2. Experiment
   * Materials Needed:
     1. Recipe (and all materials listed in recipe)
     2. Gluten free flour
     3. Gluten flour
     4. Pastry flour
     5. Measuring cups
     6. Measuring spoons
     7. Mixing bowls
     8. Electric hand mixer
     9. Spatula
     10. Spoon
     11. Oven
     12. Muffin pan
     13. Cupcake liners
     14. Ruler
     15. Permanent Marker
   * Experiment Procedure (all highlighted in grey are my scientific additions to the recipe).
     1. Preheat oven to 350 degrees.  Line cupcake pans with paper liners.
     2. Combine all purpose flour, sugar, baking powder, and salt in a large mixing bowl.  Add shortening, milk, and vanilla.  Beat for 1 minute on medium speed with hand mixer.  Scrape side of bowl with a spatula.
     3. dd eggs to the mixture.  Beat for 1 minute on medium speed.  Scrape bowl again.  Beat on high speed for 1 minute 30 seconds until well mixed.
     4. Spoon cupcake batter into paper liners until 1/2 to 2/3 full.
     5. Use permanent marker to mark the side of the cupcake liners where the batter stops. This will help get a more accurate reading when measuring the height of the cupcakes after baking.
     6. Bake for 20 to 25 minutes (22 minutes) or until toothpick inserted in center comes out clean.
     7. Cool 5 minutes in pans then remove and place on wire racks to cool completely.
     8. Choose three cupcakes from batch and use ruler to measure from the marked line on the cupcake liner to the top of the baked cupcake. Record results.
     9. Using the same three cupcakes, observe the cupcakes texture, moisture, color, and taste. Record.
     10. Repeat with the three other flours, starting from step 1
3. Results (Check each experiment post for a recorded results section)
   * Experiment #1: All purpose Flour
     1. Observations:

|  |  |  |
| --- | --- | --- |
| Cupcake # | Height Measured | Observations |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

* + 1. Conclusion
  + Experiment #2: Gluten Free Flour
    1. Observations:

|  |  |  |
| --- | --- | --- |
| Cupcake # | Height Measured | Observations |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

* + 1. Conclusion
  + Experiment #3: Pastry Flour
    1. Observations:

|  |  |  |
| --- | --- | --- |
| Cupcake # | Height Measured | Observations |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

* + 1. Conclusion
  + Experiment #4: Gluten Flour
    1. Observations:

|  |  |  |
| --- | --- | --- |
| Cupcake # | Height Measured | Observations |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

* + 1. Conclusion

1. Conclusion (Will be at the end of the experiment page!)
   * Data Analysis & Conclusion
   * Bibliography