

Science in the Kitchen: Creamy to Dreamy Butter

Grade Level: All

Objective:

- Understand and compare how different fat concentrations affect butter formation.
- Observe and take notes on how long butter takes to form.
- Analyze the results of the experiment based on the different types of milk and cream.

Materials:

- 8oz Whole Milk
- 8oz Half and Half
- 8oz Whipping Cream
- 8oz Heavy Whipping Cream
- Hand Mixer or Stand Mixer
- Mixing Bowl
- Spoon or Spatula
- Timer
- Measuring Cup
- Kitchen Scale (Optional)
- Paper Towels or Cloth Towels (for cleanup)



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Procedure:

Note: Please use the included chart to record your findings for each type of milk or cream used in the butter-making experiment. Note the fat content (%), the time it took for the butter to form, and the amount of butter produced in grams. This data will help you analyze and compare the results of using different types of milk and cream.

Preparation:

1. Gather all materials listed above.
2. Lay out the materials on a clean and flat surface.

Experiment:

1. Measure out 8 oz of Whole Milk into a mixing bowl.
2. Use the hand or stand mixer on medium to high speed and beat the Whole Milk for up to 20 minutes or until it separates into butter and buttermilk. Use the timer to keep track of how long it takes for the butter to form.
3. If butter forms, stop the mixer and timer.
4. Drain off the excess buttermilk. Save the buttermilk for another use if desired.
5. Transfer the butter to a clean surface using a spoon or spatula. Press out any remaining Liquid.
Clean out the mixing bowl/mixer for the next test runs.
6. *Optional:* Weigh the amount of butter.
7. Repeat steps 1-6 with the remaining dairy products - Half and Half, Heavy Cream, and Heavy Whipping Cream.

Chart:

Milk/ Heavy Cream	Fat Content (%)	Time Till Butter Forms (min.)	Amount of Butter Formed (grams)
Whole Milk			
Half and Half			
Heavy Cream			
Heavy Whipping Cream			

Analysis and Conclusion:

1. Did the fat content of the milk/heavy cream affect the time it took to make butter? How?
2. Which type of milk/heavy cream produced the most butter? Why do you think that is?
3. What did you observe during the process of making butter? Were there any differences between the milk/heavy cream types?
4. How might the butter made in this experiment taste differently from store-bought butter?
5. What other factors do you think could affect the process of making butter?

Remember to support your conclusion with evidence from your observations.

Additional Observations and Reflections:

