

Name _____

Scientific Investigation Worksheet: Is shaking necessary to make butter?

Step 1 – Question – What do you want to know

Is shaking necessary to make butter?

Variables I will keep the same

- Amount of cream, temperature of cream, marble in container

Variable I will change: amount of shaking

Variable I will measure: is butter formed or not?

Step 2 – Prediction – What I think will happen . . .

If I _____
refer to changed variable

then I predict _____
refer to measured variable

Step 3 – Materials – What I will use . . .

- cream
- marbles
- 2 small containers

Step 4 – Procedure – The steps I will take . . .

1. pour cream in both containers so that each is one third full
2. add a marble to each and make sure the lids are on securely!
3. when your teacher says “GO”, shake one of the containers but not the other (but hold other in your hand as well (to control for temperature))
4. trade shaking (and holding the non-shake container) with your partner
5. when you notice a change in the sound and feel of the container that you’re shaking, note the time and check it for butter. You can continue shaking it (and continue NOT shaking the other one) if it doesn’t seem quite solid enough, or you can stop.
6. When butter has formed, note the time.
7. If there’s time, go ahead and make butter in your second container!

Step 5 – Data collection (my observations during the experiment):

What did you notice about the sounds and the feel of the container you were shaking?

Compare the contents of both containers at the end of the experiment:

If butter formed, how long did it take to form?

**Overall Results (What was observed using multiple trials from the class.)
Were the results consistent?**

Why do you think it took longer for some groups to make butter?

Step 5 – Conclusion

My prediction _____
(state prediction)

was _____
(Supported or not supported by the data)

Concluding statement: _____

Questions for discussion: What is the liquid called that is left after making butter? This is buttermilk! Some people love to drink it or put it on granola instead of milk. Because all the fat went into the butter, buttermilk is actually low fat and very good for you!

Do you think it would take a longer or shorter amount of time to make butter without the marble in the container? Why? How could you test this?

Were you convinced that shaking was necessary to make butter?