

March 6

Today I was going to do a project and I pulled out my glue bottle and there was nothing in there. I thought, now what and I going to do? I just cannot make it to the store today. Is there an alternative that I could use? There certainly is. Before we had stores and the convenience of purchasing glue in convenient bottles, people would make it. Yes, you can make glue! Let's get started.

***Remember to ask an adult before you do this experiment.**

Materials

skim milk
baking soda
vinegar
water
stove
measuring cups
measuring spoons
paint brush
paper
strainer
pan or
wooden spoon
bowl
jar with a lid

Procedure

1. Measure out 2 cups (472 mL) of milk into the pan.
2. Measure 6 tablespoons (90 mL) of vinegar into the milk.
3. Stir everything together.
4. Place on the stove, over low heat.
5. Stirring constantly, heat the milk until it starts to turn lumpy.
6. Pour the contents into the strainer and discard the liquid.
7. Pour the contents in the strainer into the bowl.
8. Allow the lumps (curds) to cool and dry.
9. Add 6 tablespoons (60 mL) of water to the curds. Stir well.

10. Add 4 teaspoons (20 mL) of baking soda. Mix well.
11. Pour the mixture into a jar.
12. Place the lid tightly on the jar.
13. Allow the mixture to sit for one day.
14. You just made glue!
15. Use a brush to brush on the glue anywhere you would normally use glue.

Explanation

There is a protein in milk called casein. When you added the vinegar to the milk, it formed curds (lumps) and whey (liquid). The casein is the curd or lump that separated from the whey or liquid mixture. This glue is as sticky as the glue you would purchase in the store. The difference is that the glue you would purchase in the store is made from chemicals instead of milk which allow the glue stay fresh longer.

Patty Rooks
Acting Regional Executive Director
Praxis – The Science & Technology Hotline

March 13

St. Patrick's Day is fast approaching, and what a better way to celebrate than doing some science with potatoes. Many of you might not realize it, but potatoes play a large role in Irish history. On St. Patrick's Day, the farmers in Ireland put their stock out to pasture and begin to plant their potatoes for the new crop year.

***Remember to ask an adult before doing this experiment.**

Materials

3 or 4 large brown potato (firm newer ones if you can)
3 or 4 plastic straws
Assortment of other fruits and vegetables
Sturdy work surface (table will work)

Procedure

1. Place the potato on a sturdy flat surface.
2. Hold the straw in one hand and try to push it through the potato.
3. What happens?
4. This time, hold the top of the straw between your thumb and index finger.

5. With as much force as you can, plunge the straw into the potatoe.
6. What happened?
7. Try this with other fruits and vegetables.
8. What happens?

Explanation

Straws are stronger than you might think. It may take a couple of times, but you should have been able to push the straw right into the potato the second time. The trick is getting the angle (almost a ninety degree angle) of the straw to the surface of the potatoe correct.

By holding your finger over the end of the straw, you trapped the air inside. When the air is trapped inside of the straw, it makes the straw more rigid and less likely to bend when you are forcing it into the potatoe.

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Acting Regional Executive Director
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March 20

I know that many of you are very excited as Easter is fast approaching! What better time to do some “egg”citing experiments? This week, you need to investigate if it is possible to suck a hard boiled egg through the mouth of a bottle without mashing it all to bits. If you can get this experiment to work, you will be amazed...Let’s get started!

***Remember to ask an adult before doing this experiment.**

Materials

Hardboiled egg

Glass bottle with a narrow neck (or a bottle that an egg will rest comfortably on the opening)

Bowl of cold water

Hot water

Dish gloves

Procedure

1. Peel the hardboiled egg.
2. Place the peeled, hardboiled egg on the open mouth of the glass bottle.
3. Try to push the egg into the bottle (gently).
4. What happens?
5. You shouldn’t be able to force the egg into the glass bottle.

6. Place the egg in the bowl of cold water. Let it sit for a few minutes.
7. Hold the bottle under a hot stream of water for a couple of minutes (hot tap water will work).
8. Slowly pour all of the water out of the bottle.
9. Immediately place the egg (tapered side down), on the mouth of the bottle.
10. Carefully watch what happens.

What is going on?

The egg slowly gets sucked through the mouth of the bottle due to the hot air inside the glass bottle. The hot air is less dense (and at a lower pressure) than the cooler air outside of the bottle. The difference creates suction, which pulls the squishy egg through the bottle's neck.

Now the trick is to get the egg out of the bottle in one piece. Any ideas? If you want the answer, send us an e-mail at praxis@praxismh.ca.

Patty Rooks
Acting Regional Executive Director
Praxis – The Science & Technology Hotline

March 27

I am sure that many of you are beginning to get excited as the Easter break is fast approaching. In order to keep with the theme of eggs and Easter, I thought we could do a little bit of testing with those “eggstra” eggs you may have in the fridge!

***Remember to ask an adult before doing these experiments.**

Raw or Hard Boiled Test

Materials

hand
raw egg
hardboiled egg
flat hard surface to work on

Procedure

1. Take one of the eggs and spin it. Observe.
2. Take the second egg and spin it. Observe.

Explanation

If the egg spins well, it is hardboiled. The egg that wobbles and weaves all over is the raw egg. A hardboiled egg is a solid object, whereas a raw egg is still fluid inside. When the raw egg spins, the center of gravity changes as the insides of the egg are also moving around.

Strength Test

Materials

hand

raw egg

Procedure

1. Place the egg in the center of your palm and hand.
2. Wrap your fingers evenly around the egg.
3. Squeeze as hard as you can.

Explanation

The egg should have stayed in one piece. When you are squeezing the egg, the force and pressure are being distributed evenly out along the entire surface of the egg. As a result, the egg stays in one piece. The egg is stronger than you might think!

Keep reading next week as our new Executive Director; Alannah Maurer will be thrilling you with more science experiments! Have a great break!!

Patty Rooks

Acting Executive Director

Praxis – The Science & Technology Hotline