

DIY Plastic Milk



What Do I Need?

- 568ml of full fat milk
- 4 teaspoons of white vinegar
- A strainer/sieve or a muslin cloth
- Food dye
- A cookie cutter
- A spoon
- A pan or a bowl

Skill Level:

Medium

Time

15 minutes

How Do I Do It?

1. Get a grown up to heat the milk in a pan or in the microwave. It should be hot but not boiling.
2. Pour the milk into a bowl and add the vinegar and food dye.
3. Stir for about a minute then pour the milk and vinegar solution through the strainer into the sink. If you have some muslin cloth, use it to line your strainer, it's easier to get your plastic milk out.
4. There should be a mass of lumpy blobs left in the strainer.
5. Rinse them with water and squeeze them together.
6. You can use the cookie cutter to cut out shapes, or just mould them into any shape you like.
7. The mixture should harden in a couple of days.

Continued overleaf

DIY Plastic Milk (continued)

Safety Advice:

IMPORTANT GENERAL SAFETY NOTE FOR SUPERVISING ADULTS. This Terrific Scientific investigation has been devised so that with adult supervision, reasonable care and by following the instructions provided, no special safety equipment or knowledge is required to enjoy the experience safely. These safety reminders are designed to assist the supervising adult when planning and carrying out the investigation. Please read the instructions fully before starting.

- The milk only needs to be warm. It can be heated in a bowl placed over a pan of hot water or in a microwave.
- Take care to advise anyone doing this investigation or working with the plastic milk that they are working with milk products in case they are lactose intolerant.

What's Happening? The Sciency Bit:

You have just made your first batch of cheese! (Sort of.) You have actually created casein (which is Latin for "cheese") and is made when the protein in the milk meets the acid in the vinegar. The casein in the milk does not mix with the acid in the vinegar so it forms blobs.

This is an example of an irreversible change. Did you notice how much water is in the milk (the part you throw away)? Milk is a good source of water as well as many other substances. This is the same principle to make cheese. Micro-organisms caused the milk to separate into solid and liquid.

My Milk Won't Turn Into A Solid... What Can I Do?

- The vinegar may be old and has lost its acidity, use fresh vinegar.