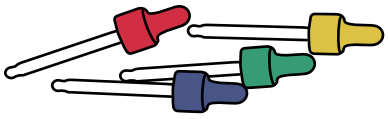
ACTIVITY SHEET 1: HOW IS MILK DIFFERENT FROM CURD?

What you will need:

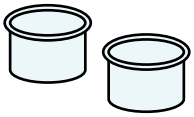
A sample of milk

A sample of curd

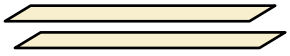
Two glass slides



Four droppers



Two transparent tubes or medicine bottle caps



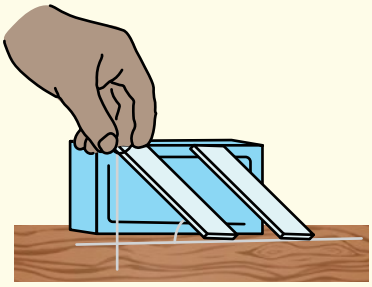
Two small strips of pH paper or a natural indicator (like that made from red cabbage)

What to do:

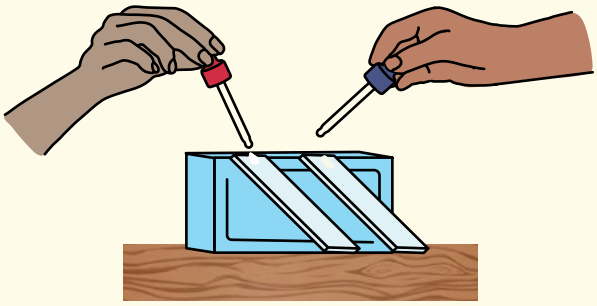
1. Smell the two liquids carefully. Do they smell the same or different? Try to describe the smell of each liquid in one word.
2. Place two glass slides against a support so that they slope at about 45°. Using a dropper, place one drop of one liquid near the top edge of the first slide. Ask a classmate to place one drop of the other liquid at the same position on the second slide. Observe carefully.

   (a) Do the drops stay in one place or move down the slide? Do they move at the same speed, or does one move faster?

   (b) Do the drops leave a mark or streak behind? Is there a difference in how these streaks look?

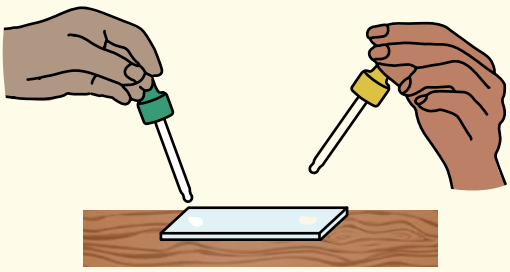


~45 degrees inclination of glass slides

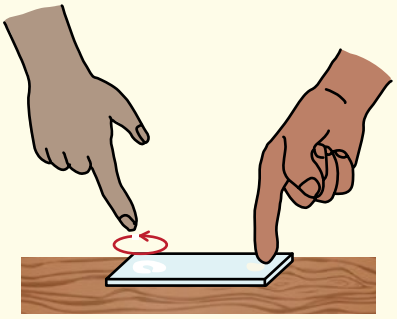


Drops of liquid on inclined glass slides

3. On a clean glass slide, place a drop of Sample 1 and a drop of Sample 2, side by side. Use your forefinger to spread one drop into a small circular smudge by moving your finger at least five times in small circles. Wash and dry your finger before doing the same with the other drop. Look closely. Do the two smudges look the same or different? Describe what you notice.



Drops of milk and curd placed side by side on a flat glass slide



Spreading drops of milk and curd into circular smudges using a forefinger

4. Using a dropper, place a drop of one liquid on a piece of pH paper. Does the colour change? What does this tell you about whether the liquid is acidic, basic, or neutral? If you are using a natural indicator, put a small amount of the liquid into a bottle cap. Add a few drops of the indicator and observe the colour. Repeat the test with the other liquid. Is there a difference in the pH of the two liquids?

5. Record your observations in the table below. You may also draw what you see.

Features	Liquid Sample 1	Liquid Sample 2
Smell		
Thickness (how it flows)		
Appearance of smudge		
pH/indicator colour		
Any other observations		

Think about:

- One sample is milk and the other is curd. Based on your observations, can you identify which is which? What evidence supports your choice?
- Which observation helped you the most in identifying curd: (a) Smell, (b) Thickness/flow, (c) Smudge appearance, or (d) pH? Why do you think this was more reliable than the others?
- Did any observation seem unclear or confusing at first? What helped you decide anyway?
- If two students disagreed about which sample was curd, what further test or observation could help settle the disagreement?

Discuss:

- Are milk and curd different only in how they look and flow? Or are they different in their chemical nature as well? Which of your observations suggest a chemical difference, and why?
- When milk turns into curd, is this change easy to reverse? What does that tell you about the kind of change involved?

Some more questions to think about:

- Would heating milk and curd give the same result? Why or why not?
- If curd is mixed with water, would it behave more like milk? Which properties would change, and which would not?
- Can two liquids look similar but still be chemically different? What evidence from this activity supports your answer?

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Contributed by:

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