

Naked Eggs

SUBJECT AREAS

Science, Language Arts, Art, Mathematics

GRADES

All

OBJECTIVE

Students will study how liquids can pass through a membrane and will be able to relate the shell membrane to their skin.

MATERIALS

- Quart glass jar
- Vinegar to half fill the jar
- 3 raw eggs
- Cardboard to cover jar
- Corn syrup
- Permanent marker
- Tape Measure
- Scale

Procedure

1. Fill the jar half full of vinegar. Draw two different faces (happy, sad) on opposite sides of each egg. Place the eggs in the jar. Cover the jar with the cardboard.
2. Bubbles will begin to show on the surface of the eggs after a few hours.
3. After one day, the shells have softened and begun to disappear. Can you still see the faces?
4. After two days, most of the calcium will have dissolved and you can see the thin membranes that are between the shell of each egg and its contents.
5. Remove the eggs from the vinegar and carefully rub any remaining shell off under cold running water.
6. Place one egg in the corn syrup so that the syrup covers it completely. Place second egg in plain water so that it too is covered. The third egg will be used as a control egg, and can be placed in a plastic bag to prevent dehydration.
7. After a few days, you will notice that changes in the two of the eggs covered in corn syrup and water. What do you think will happen?

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Note: Egg in corn syrup. The liquid inside the egg is not as concentrated as the sugar water corn syrup. Chemically, the liquid wants to go where there is a high concentration of matter and equalize the concentration. After two days, you will have only a membrane around an egg yolk because the water from the egg white has moved out of the egg.

Note: Egg in plain water. The liquid inside the egg is more concentrated than the plain water in the container. The water goes into the egg to equalize the concentration. After two days, you will have an egg that is nearly the size of a tennis ball.

Challenge: You might try reversing the experiment. Note what the egg in the corn syrup looks like after a few days and then put it in the water. Put the egg from the water into the corn syrup. Are you able to reverse the activity?

Hint: In handling during this activity, it is easy to break the membrane of the egg and delay the experiment. Three eggs are suggested so that if one breaks, you still have two to use for the lesson.

Students keep a journal with drawings showing what is happening to the eggs.

Note: Carefully measure and weigh the eggs to note changes.

