

Experiment and Learn: A Lesson Plan for Elementary School



The Mystery of the Missing Calcium

Adapted from: www.nutritionexplorations.org/educators/lessons/quick/quick-missingcalcium.asp

This simple experiment helps children learn why calcium is such an important nutrient for helping keep bones strong and healthy for a lifetime. Smaller bones work better than larger bones for this experiment.

What You Need:

- 2 cooked chicken bones with the meat removed
- 2 small glass jars with lids
- 1 cup water
- 1 cup vinegar*



(*You can also do this experiment with cola that contains phosphoric acid. Just refrigerate the jars and change the cola every 2 to 3 days.)

What You Do:

Put one bone in each jar.
Fill one jar with water and the other jar with vinegar. Put on the lids.
Set aside for at least two weeks.

What You'll See:

In the jar filled with vinegar, you'll see calcium crystals. Why? The calcium is pulled from the chicken bone, causing it to weaken and bend. After you take the bones out of the water and vinegar, leave them out to dry for a few weeks. Break each dry bone to compare which is stronger. The bone with less calcium will be brittle and break more easily.

Grades 3-5

- Have children describe what would happen to their bones if they did not get enough calcium in their diet.
- Have students explain why they think the vinegar (or cola) caused the bone to bend.

Maine Learning Results Links: (Grades 3-5)

Health Concepts, A1: *Describe the relationship between healthy practices and personal health (e.g., eating well and exercise).*

Science and Technology, K3: *Draw conclusions about observations.*

Experiment and Learn: A Lesson Plan for Middle School



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Grades 5-8

- Have students research chemical reactions and form a hypothesis about what will happen to the bones.
- Explain how this experiment demonstrates a connection between diet and future health.

Maine Learning Results Links:

Science and Technology Middle Grades 5-8, K6: *Support reasoning by using a variety of evidence.*

Health and Physical Education Middle Grades 5-8, A1: *Explain the relationship between healthy behaviors and the prevention of injury, illness and disease.*