



Boonshoft

Museum of Discovery

Rubber Bones

Materials

- Chicken bones
- Scrub brush
- Container filled with warm, soapy water
- White vinegar
- Glass jar with lid, such as an old salsa jar

What to Do

1. Begin by cleaning the chicken bones by filling a container with warm, soapy water. Use the scrub brush to remove bits of meat left behind. Rinse the bones with fresh water.
2. Place the clean bones in the glass jar and cover them completely with vinegar. Close jar with lid.
3. Place the experiment somewhere safe and check the bones over the next few days. Take the bones out of the vinegar and try to bend them. The strength of the vinegar will determine how long it takes for the bones to be able to bend. This process may take anywhere from 3-7 days. To make the experiment more efficient, it may be beneficial to drain the jar and replace the vinegar every other day.

What is happening?

Bones are made of minerals like calcium and phosphate, which help bones stay strong and allow your body to support itself and protect the organs. Bones also contain softer material called collagen. Collagen gives bones flexibility. Without collagen, your bones would shatter if you fell! By placing the bones in a weak acid – vinegar – the calcium and phosphate minerals are dissolved, leaving the flexible collagen behind.

Lesson Extensions

What would happen if you used a different type of vinegar? Try the experiment again, but use a different type of vinegar such as apple cider vinegar or red wine vinegar. To have accurate observations for comparing vinegar types, get a new bone of the same type (rib, leg, etc.) and leave it in the new vinegar for the same amount of time as you did in the first experiment.

Ohio Early Learning and Development Standards

Cognition and General Science/Science/Science Inquiry and Application/Inquiry

Ohio Learning Standards

C.IM.1, PS.M.5

Next Generation Science Standards

5-PS1-4, MS-PS1-2