

From Cartilage to Bone

GOAL:

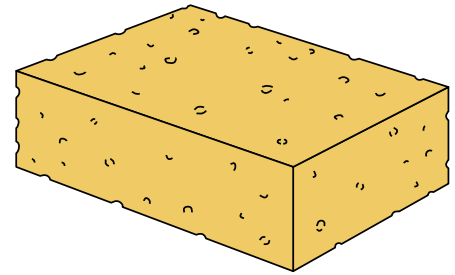
You will understand the difference between bone and cartilage and see how calcium is essential for bone strength and density.

OBJECTIVE:

To change the sponge (cartilage) into something harder and stronger (bone) by applying paper mache (Calcium) to it.

MATERIALS:

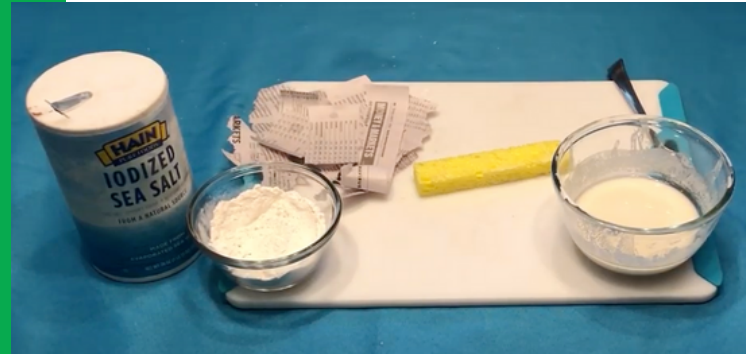
- Sponges cut into thirds the long way
- Small squares of old newspaper
- For paste: 1 cup flour to 2 cups water and 2 tbsp of salt OR $\frac{3}{4}$ cup glue to $\frac{1}{4}$ cup water.



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INSTRUCTIONS:

1. Create the paste by mixing the above ingredients in a large bowl. (The consistency should be a little runny and should have no lumps!)
2. Tear the newspaper into small squares.
3. Cut the sponges into thirds the long way.
4. Cover tables with a table cloth or plastic.
5. Paper mache the sponge (the sponge is like cartilage. It is flexible and you can move it easily).
6. Dip the paper square into the paste. Place the paper over the bowl and squeeze out the excess paste. (The paste represents Calcium.)
7. Stick the paper square on the sponge and smooth it out.
8. Continue applying your sponge with the paper mache until it is completely covered.
9. Let your sponge dry. Once completely dry, it should now be hard and unable to bend (or less easily). This is like when cartilage becomes hard bone!



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Vocabulary:

The process of cartilage turning into bone is called ossification.



How to get the Calcium you need to turn cartilage into strong bones:

**Green Veggies
(Broccoli, Spinach,
Kale)**

**Dairy Products (Cheese,
Yogurt, Milk)**

Salmon

Beans

