

HOME/SCHOOL CONNECTION

Investigation 4: Human Body

Living bone is composed of two tissues.

- **Bone cells** and the blood vessels and nerves that maintain them.
- A **dense matrix** that fills the space between the cells.

It is the dense matrix that we associate with bone. The matrix is hard, strong, and resilient, making bone an ideal material for providing structure and protection.

The matrix is composed of two main materials.

- Mineral salts, mostly calcium phosphate, 65%.
- Long fibers of collagen, a flexible protein, 35%.

To find out more about bones, try this investigation at home.

1. Remove all the meat from a cooked chicken wing or drumstick. Wash the bone well, perhaps using a metal scrub pad.
2. Let the bone dry overnight.
3. Place the bone in a jar. Cover the bone with regular household vinegar.
4. In a day or two, pour off the old vinegar, and replace it with new vinegar.
5. Repeat this process of refreshing the vinegar for a week or 10 days.
6. Rinse the bone thoroughly with water, and check it for rigidity.

What were your results? Describe the bone and how it has changed.

Vinegar is a mild acid. What do you think happened when you put the bone into acid?