



Bone Development and Strength

Activity Synopsis

Students will discover how inner framework adds to the strength of bone.

Activity Outcomes

Students will be able to discuss how bone density strengthens bones.

Materials

Straws, rulers (one for each group), pencils, scissors, glue or tape
And paperback books

Advance Preparation

- Gather materials
- Divide students into work groups
- Optional: cut paper strips and straws

Suggested Instructional Strategy

- Divide students into work groups. Direct the groups to cut a rectangular strip 2 ½ inches tall by 7 inches long. Repeat to make a second rectangular strip.
- Ask the groups to make two identical cylinders by gluing/taping the short edges together.
- While the glue dries, ask students to use the scissors to cut straws into 2 ½ inch lengths. Each group will need about 60 of these shortened straw tubes.
- Tell the students it is now time to discover how bones get their strength. Place both cylinders on a flat surface, side by side. Stand the straw tubes inside the cylinders. Fill one cylinder completely full. Leave the other cylinder empty.
- Place paperback books on the empty cylinder one at a time until the cylinder collapses. How many books did it take? Now do the same with the filled cylinder. How many books did it take to collapse the cylinder?
- Review with the students that the cylinder that was filled with small tubes was the strongest. The network of small tubes provides strength that is not found in the empty cylinder. The structure of a healthy bone looks very much like the cylinder with the tubes.