

Bird Bone Experiment

Ages

6 -14+ years old

Description

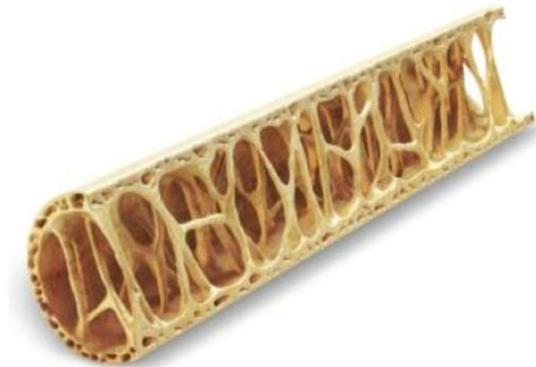
Did you know that birds have hollow bones? Having hollow bones is a special adaptation that birds have in order to be lightweight so they are able to fly! However, it can be hard to understand how hollow bones can still be strong enough to support a bird's muscles and the physical stresses of take off and landing. In this science experiment children will test how much weight a structure supported by hollow paper "bones" can hold and see just how strong hollow bones can be!

Background

Birds have many adaptations to help them fly, and a lot of them are to make them lightweight. The less a bird weighs the easier it is to fly! One of the special adaptations that birds have to make them lighter is hollow bones. Mammal bones, including ours, are much heavier because they have thick walls and are filled with marrow. Hollow bird bones are still very strong (so they can withstand take off and rough landings) as they are reinforced with criss-crossing struts or trusses for structural strength.



[Source: Education.com](http://Education.com)



Materials

- Paper plate
- 3 pieces of scrap printer paper
- Scotch tape
- Pennies/rocks/anything with weight that you have lots of!
- Books, water bottle, etc.

Directions

1. First, use the background information to discuss with your child that birds have hollow bones and why this is needed.
2. Roll each piece of paper, starting from the short side, into a tube approximately 1 inch in diameter. Use tape to secure the tubes so they don't unroll.
3. Balance the "bones" on one end so they are standing tall and make a triangle.
4. Balance the paper plate on top of the paper "bones".
5. Ask your child how many objects (pennies/rocks/etc.) they think the structure will hold. Have them write down the estimate on paper and write down your estimate as well.
6. Add the small objects one at a time to see how many the structure can hold. Make sure to spread them evenly around the center of the plate to stay balanced.
7. Continue until either the structure collapses or you run out of the small objects and then count them. Were either of your estimates close?

8. If your structure is still intact, you can experiment further by finding other heavy items around the house (e.g. books, water filled bottle, apple, etc.) and balance those on the plate instead.

You may be surprised at how much weight it can hold! Remember your structure may eventually collapse so be careful not to place anything on top that could spill or break if it falls.

9. Ask if they were surprised by how strong the hollow "bones" were. Did it hold more weight than you expected?



Have fun experimenting and make sure to share your photos with us on the Allan Brooks Nature Centre Facebook Page!