

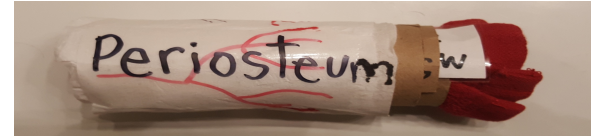
AT HOME SKELETAL SYSTEM PROJECT – “How 3 TP Tubes Become a Bone Model!” – Joe Blanton, MS

Objective: Turn toilet paper, three empty TP tubes and a washcloth into a realistic model of the layers of a bone.

Materials:

Length of toilet paper (TP) about 12-15 inches
3 empty toilet paper (TP) tubes
Washcloth (red if available, otherwise orange or yellow)
Scissors

Tape
Black marker
Red marker



Background:

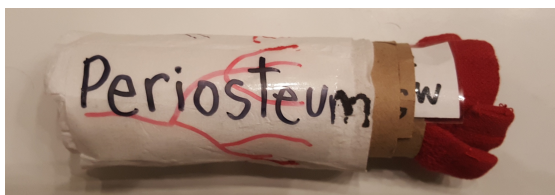
Almost every bone in your body is made of the same 4 types of materials:

1. The outer surface of bone is called the **periosteum** (say: pare-ee-OSS-tee-um). It's a thin, dense membrane that contains nerves and blood vessels that nourish the bone.
2. The next layer is made up of **compact bone**. This part is smooth and very hard. It's the part you see when you look at a skeleton. Most of this layer contains the mineral called calcium.
3. Within the compact bone are many layers of **cancellous bone** (say: KAN-sell-us BONE), which looks a bit like a sponge. Cancellous bone is not quite as hard as compact bone, but it is still very strong.
4. In many bones, the cancellous bone protects the innermost part of the bone, the **bone marrow** (say: BONE MAIR-oh). Bone marrow is sort of like a thick jelly, and its job is to make blood cells.

Directions:

1. Write the word BONE MARROW on a very small piece of paper. Cover it with tape both front and back. This is how you create a laminated label. Set it aside for now.
2. Fold a wash cloth twice into quarters. Then roll it tight so it fits easily inside a TP tube. Tape the washcloth roll to itself so it doesn't unroll. Check it. Does it still fit easily into the TP tube? If not, untape, reroll, check, and retape.
3. Take a TP tube and cut down the side to open the tube.
4. Set aside the rolled washcloth and this cut unlabeled TP tube for now.
5. Write the word CANCELLOUS down the side of another TP tube and underline the word.
6. Write the word BONE under the word CANCELLOUS.
7. Cut this TP tube down the side between the two words using the underline as a guide for the scissors.
8. Set aside this second cut TP tube.
9. Take the third TP tube and write the word COMPACT down the side of this TP tube.
10. Write the word BONE under the word COMPACT. DO NOT CUT THIS TUBE!
11. Wrap this TP tube with a length of TP paper a couple of times around (about 12-15 inches). Do this loosely so it slides along the TP tube easily.
12. Tape the TP paper to itself so it doesn't unwind.
13. Write the word PERIOSTEUM down the length of the TP paper. I like to write this word over the tape.
14. Take the red marker and draw branching lines running down the TP paper. These lines represent blood vessels.
15. Take the black marker and draw branching lines running down the TP paper. These lines represent nerves.
16. Assemble the parts in the following order:
 - a. Place the rolled and taped washcloth inside the cut unlabeled TP tube.
 - b. Place this pair inside the cut TP tube labeled CANCELLOUS BONE.
 - c. Place this trio inside the uncut TP tube labeled COMPACT BONE that is covered by the PERIOSTEUM.
17. Slide the PERIOSTEUM slightly to the left to reveal the words COMPACT BONE underneath.
18. Pull the cut TP tube labeled CANCELLOUS BONE out slightly.
19. Pull the rolled washcloth out slightly.
20. Slightly tuck the label BONE MARROW into the cut TP tube with the washcloth sticking out. (SEE IMAGE BELOW.)

CONGRATULATIONS! YOUR BONE MODEL SHOWING ALL 4 LAYERS IS COMPLETE! SHARE IT WITH FAMILY! SEND ME A PIC!



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