WESLEYAN SCIENCE OUTREACH

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Bones and the Human Skeleton

This lesson plan is an introduction to bones and the human skeleton. Today, the kids will become familiar with the roles of the human skeleton and the names and locations of some key bones. They will also learn about how it is important to eat foods that contain calcium because it makes our bones healthy and strong!

Material List

- 1 3-foot-tall skeleton model
- Sticky labels with bone names
- 60 bone matching worksheets
- 5 high calcium foods posters
- 60 high calcium foods handouts
- 60 "Bag of Bones": pre-cut/hole punched bones in Ziploc bags for assembly at club
- 550 small metal fasteners (Brads)
- Crayons/markers

Key Words

- Skeletal system
- Calcium
- Bone mass

Activities

Activity 1: Introduction to the Skeleton, Bone Names and Functions
[20 minutes]

Today we will be learning about bones and the human skeleton! Who wants to tell me something that you know about bones?

[Call on a few kids to see what they already know about bones/the skeleton.]

All the bones in the human body together are called the **skeletal system**. The skeletal system provides our body with strength so we don't just flop around like jellyfish! How many bones do you think we have in our body?

[Have a few kids guess how many bones are in our body.]

We have 206 bones in our body, and each one has a specific function. Some bones offer protection. For example, the skull protects the brain and the ribs protect the heart and lungs. Other bones, like the bones in our arms and legs, help us move around by providing support for our muscles. The skeletal system also includes tendons, ligaments, and cartilage, which help connect our muscles and bones together. Today we are going to focus on learning about bones!

[Pass out the bone matching worksheet.]

Let's learn the names and functions of some really important bones in our bodies! As we learn each bone name, you can draw a line on your worksheet to match the name of the bone to where it is on the skeleton picture.

[For each bone: tell them the bone name, and then ask the kids where they think it is and what it does before telling/showing them. Make sure to point out on your body where each bone is as you tell them about it. Go in order beginning at #1 and if the kids are getting tired of learning the specific bones, stop at bone #5]

1. **Cranium:** skull bones
   -The scull bones keep our brain safe and protected.
2. **Humerus:** upper arm bone
   -Helps us lift things and do other physical activities.
3. **Phalanges:** finger and toe bones
   -Finger phalanges help us to hold things and manipulate our environment; toe phalanges help us balance, walk, and run.
4. **Vertebrae:** spine bones
   -Protects our spinal cord and helps to connect muscles and other bones in our body.
5. **Femur:** thigh bone
   -Longest bone in the skeletal system; it supports the weight of the body and allows the legs to move.
6. **Sternum:** chest bone
   -Connects to the ribs and helps to protect the heart and lungs.
7. **Pelvis:** hip bones
   -Helps support the weight of the upper body and it attaches our legs to the rest of our body.

[After teaching them the bone names, let the kids help you label the model skeleton with the name labels as a review of what they just learned.]

Let's test your knowledge of what we just learned! We are going to pair you up and give each group a bone name. It is your job to find where the bone is on the skeleton model! We are going to take turns labeling the skeleton with the bone names. The labels have Velcro on them so once you find the bone, stick the label onto the skeleton!

[Pair the kids up and give each pair/small group one bone label. If it is a really big group of kids, make groups of three students. If there are still too many students, you can do the labeling game twice. Give the pairs/groups a few minutes to figure out where on the skeleton their bone

label should go. Then one by one, call each group up to put the Velcro label on the skeleton. Make sure they label the correct bone!!]

Activity 2: Calcium Makes Bones Strong
[5 minutes]

Now that we know about some different kinds of bones, let's talk about what our bones are made of. Does anyone know what helps to build our bones big and strong?

[Call on a few kids to see what they say/if they know about calcium.]

Has anyone heard of **calcium**? Around 70% of your bones are made of hard minerals like calcium. Calcium is a mineral that makes bones very strong so they can support our muscles and protect our organs without breaking. To make sure you have strong bones for the rest of your life, it is really important to build up your **bone mass** by eating foods that contain a lot of calcium! *[Emphasize to the kids that bone mass is the amount of minerals, such as calcium, your bones have.]*

Does anyone know what kinds of food have a lot of calcium?

[After they give you some answers, show the kids the poster with high calcium foods. Pass out the handout with pictures/names of high calcium foods for them to take home. The handout is a small version of the poster]

Some of the foods that have a lot of calcium are: milk, yogurt, cheese, broccoli, kale, spinach, tofu, salmon, sweet potatoes, oranges, blackberries, almonds, sesame seeds, and sunflower seeds.

[Point out each food on the poster as you go through the list. Ask the kids which foods from the poster they like. Remind the kids how it is important to eat enough calcium to keep their bones strong, and that they can look at this sheet to remember which foods have a lot of calcium. Maybe suggest hanging it on the fridge at home?]

Activity 3: Make Your Own Skeleton Craft
[20 minutes]
Next we are going to make our very own mini skeletons out of paper and metal fasteners! Here is what our skeletons are going to look like: *[Show the kids the completed paper skeleton that is included in the box.]*

Instructions to assemble the paper skeleton:

1. Pass one plastic bag with the pre-cut and pre-hole punched bones to each student.
2. Before they connect any of the bones together, have the kids assemble the skeleton on the table like a puzzle, so they know which parts connect together. Encourage them to use the 3D skeleton as a model for assembling their mini skeletons.
3. Once the kids have the bones laid out correctly, teach them how to use the metal fasteners to connect the bones together. Simply align two bones where they should connect and

poke the metal fastener through the paper at the small circle. Then spread the two prongs open to keep the bones attached to each other.

4. Pass out 9 metal fasteners to each student (they will not need more than 9 to complete the skeleton). The younger kids might need some help using the metal fasteners.
5. After they assemble their skeletons, the kids can color them in or decorate them however they want.

Conclusion

Today we learned about the human skeleton and some of the important bones that are in our bodies. Our bones work in different ways to protect our organs and support our muscles so we can move around. Since they do so much for us it is our job to keep them healthy, big, and strong! One thing we learned today that will keep our bones strong is to eat foods that have a lot of calcium. Exercising and eating foods that are high in protein can also keep our bones healthy and strong! I hope you enjoyed learning about bones!

Instructor Comments

When teaching the kids the bone names, go slowly so they can understand each name and try to find it on their sheet and match it to the diagram. Make sure they enjoy themselves and understand that the bone names we taught them are only 7 out of 206…maybe encourage them to learn even more about bones if they ever get the chance!

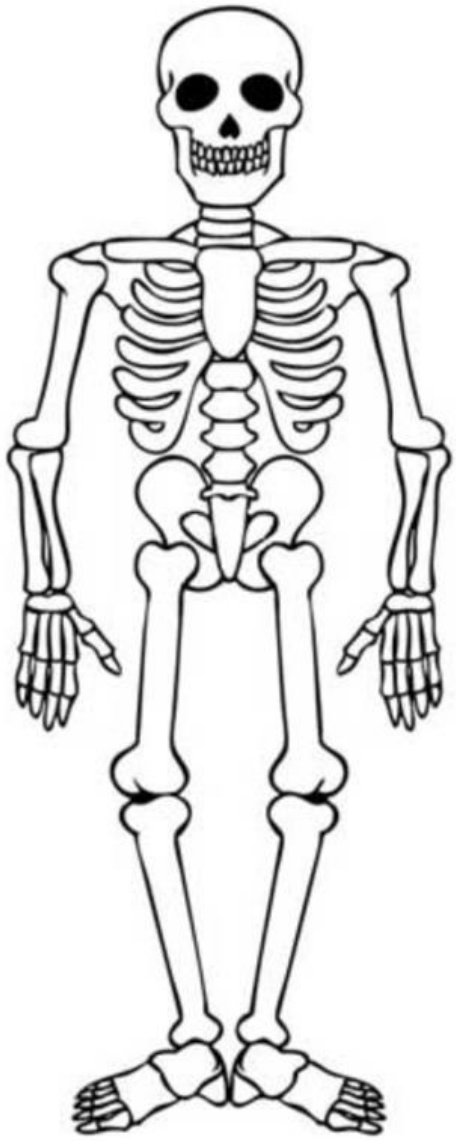
The Human Skeleton

Cranium

Humerus

Pelvis

Femur



Sternum

Vertebrae

Phalanges

My Calcium Rich Foods List

milk

yogurt

cheese

broccoli

kale

spinach

sweet potato

tofu

salmon

sesame seeds

almonds

sunflower seeds

blackberries

oranges