Royal BC Museum
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Fossilized Bone or Fossilized Wood?

Fossilized wood and fossilized bone can be hard to differentiate. Here is what to look for:

At the core of the bone is a spongy structure made up of small structures called trabeculae. This is where blood vessels and bone marrow are located. The hard outer layer of bone is composed of compact bone tissue. It gives bone its smooth, white and solid appearance and accounts for 80% of total bone mass as it does in a human skeleton.

The original inorganic composition of bone is carbonated hydroxyapatite. Fossil bone is commonly re-mineralized. These minerals infill the spongy core of bones and may even replace the original bone minerals. Remineralization makes the fossil bone heavy.

Wood is a hard fibrous tissue commonly found in trees. It is composed of cells. The cell walls are microfibrils of cellulose, hemicellulose and lignin. In cross-section you can commonly see growth rings where they may be thicker or thinner depending on the rate of growth of the tree and the amount of water available during its growing season. Look for the fibrous nature of wood to differentiate it from bone.

Invite your students to look closely at the objects in this Provocation Pack so they can learn to tell the difference between a fossilized bone and fossilized wood. Watch out, there is a wild card in the bunch. Can you spot it?

Wood – Petrified Wood (x 3)

Fossilized wood can often be shaped like fossilized bone. Notice the texture of the outside of the wood and how it has a grain just like modern wood. The growth rings found on the cross-section of the fossil are even and numerous as opposed to the uneven and few layers on the fossilized bones.

Fossil – Ceratopsian Horn

Ceratopsidae is a family of dinosaurs known for their elaborate head displays of large horns and frills. The famous *Triceratops* comes from this family.

Fossil – Dino Bone (x 2)

Two dinosaur bone fossils of unknown origin. Notice the differences between the inner bone material of spongy trabeculae and the smooth outer layer of compact bone tissue.

Fossil – Hadrosaurus Vertebrae (x 2)

Hadrosaurus is a genus of dinosaur that lived in North America during the late Cretaceous period (83 to 77 million years ago). Also known as duck-billed dinosaurs, they were four-legged and 7–8 m in length and around 3 m in height. They were herbivores, sporting a keratinous beak and complex teeth to break down and process foliage.

WILD CARD – Piece of Modern Wood

Note the weight of this item. Modern wood is much lighter than fossilized wood. Fossilized wood has been mineralized and therefore is heavier. Note also the texture of modern wood. It is much rougher due to the organic material, whereas fossilized wood is much smoother and rock-like.

WILD CARD - Elephant Tusk

Note the rings observed in the cross-section of the elephant tusk. Were you fooled into thinking it was wood? In this case, the density of the white tooth minerals and the shape of the tusk should help with the correct identification.