

ACTIVITY 3A: GROSS BONE ANATOMY

TEACHER INFORMATION PAGE

GROSS BONE ANATOMY

1. Examination of Bone

Obtain three long bones of a deer or cow from someone who processes meats. Clean any debris from the bones. Each bone will be used to make different observations.

Use the first bone for external observations. Give students the opportunity to examine the structure (they may wish to wear latex gloves). Notice the shapes of the ends of the bone, feel the slick periosteum, peel back a small section of periosteum to examine bone tissue underneath, note the small blood vessels. Let students use hand lenses or dissecting scopes to continue the examination. Students should make notes and sketches of what they see in their science journals or naturalist's notebooks.

[Note: At this point, the teacher may want to provide a bone sample that is not as "fresh," so that students can observe the difference between the two.]

Prepare the second bone ahead of time. With a bandsaw, slice the bone crosswise in the center; then slice again, crosswise, 1-to-2 inches from the end and; finally, slice the bone crosswise at the thickest part on one or both ends. Provide students with the sections you have prepared and allow them to continue their observations. Use this opportunity to explain what is meant by a "cross section." Make sure students notice the inner cavity and its lining, the soft marrow, the blood vessels, and the pores through which the blood vessels run. Students should make more notes and sketches in their journals.

Prepare the third bone ahead of time. Again, with a bandsaw, slice the third bone lengthwise from end to end. Provide students with these slices and explain what is meant by "longitudinal section." Allow students to continue their observations, notes, and drawings.

[Note: If the teacher does not have a bandsaw at home to prepare the specimens, ask the school's woodshop teacher to assist in cutting the bones. After cutting the bone, the blade should be cleaned by carefully passing a bar of bathsoap or a chunk of beeswax into the blade and/or removing the blade completely to clean it and the rest of the saw.]

II. Examination of Bone Tissue

Have prepared microscope slides or microviewer slides of bone tissue and bone cells ready to be viewed. Allow students the opportunity to see the slides. These can be purchased from numerous science supply houses.

Perhaps students may want to try to make their own slides with thin slices from the bone specimens provided in part I. They may also want to try to make smears of the marrow to examine under the microscope.