

Specific Gravity of Wood

Subject(s): Science/Math

Grade Level: 4th-6th

Time Required: 60 minutes (5 introduction; 5 experiment preparation; 10 direct teaching; 15 min experiment; 10 team discussion; 15 class sharing)

Lesson Objectives:

The students will measure and mark wood samples in increments of an inch. The students will experiment to see to which depth a variety of woods will sink when placed in water.

Materials Needed:

10-inch long samples of Douglas-fir, western redcedar, western larch, and balsa, inch ruler, paper, permanent markers, graduated cylinders at least 12 inches tall

Procedure:

1. Teacher Preparation: Place all wood samples in oven at 220 degrees F for at least 12 hours immediately before experiment is performed.
2. Place students in teams of four. Demonstrate how each piece of wood is to be marked in one-inch increments using the permanent markers. Ask each student to choose one wood sample and mark it. Allow time for students to accurately mark their samples.
3. As a large group, check to see that all wood samples have been marked correctly. Explain how the wood has been dried so that basically no moisture is remaining in the wood. Explain the term “buoyancy” and that is what we will be checking on our samples. Give students the following instructions:
4. Discuss in your team which woods you think will float the highest in the water. Write your predictions down and tell WHY you made that prediction.
5. One at a time place the wood sample in the water and record to what depth your sample sank. If it comes between two marks, use a decimal to be more accurate.
 - a. Discuss any “surprises” you had. Be ready to report to the class.
6. As a large group, discuss results. Were your predictions correct? Do any students know exactly which woods they had? Identify the woods for the students by their specific gravities.

Douglas-fir	0.45
western larch	0.48
western redcedar	0.32
balsa	?? We'll see!

7. Have students write a paragraph telling what they found out, how the results could be used in some way, and what questions they might still have. (Some students may want to bring in other samples the following day to experiment with. Be sure to remind them that the wood needs to be dried before the experiment can be performed.)