

## Lesson 14 Building with Basswood Strips (Catapult I).

**Objectives:** Students gain experience following specific instructions building a pre-designed project so that they have an idea on how to design and build their own projects later.

Students practice measuring and using hand tools.

Students will understand why metric measurement is important in science and engineering.

**Materials:** Goggles, saws, bench hooks, clamps, hand drills, reamers, wood to cut over, rulers, pencils, 1 1cmx1cmx40cm basswood strip per student and 1 1cmx3mmx40cm basswood strip per student, 1 ziplock bag and index card per student. Several strips of 1cm x 1cm basswood in 8cm, 9cm, and 10cm lengths. Marshmallows, meter stick.

**Handouts:** Catapult agreement, measurement diagram with additional questions.

**Sponge:** Catapult agreement (only use marshmallows as ammunition)

### Initial

**Discussion:** Show students a completed catapult. Explain that only marshmallows will be used as ammunition. Explain that all students will measure their wood first, then one group will cut their wood at a time while the others complete the previous week's project or work on their worksheets.

Review centimeters and millimeters and why scientists and engineers often use the metric system for measurement.

**Project:** All students measure their 1cmx1cm basswood strips into the following lengths: 4 9cm pieces, 2 2cm pieces, and make a mark 23cm from one end of the 1cmx3mm strip.

Under direct teacher supervision, small groups of students go to the cutting station and saw their 1cmx1cm strips of wood on the lines they measured.

Students drill a 3/16" hole in 1cmx3mm strip where measured.

Students measure 1cm from one end of two 9cm strips and drill a 3/16" hole where measured.

**Vocabulary:** basswood, centimeter, millimeter

### Final

**Discussion:** Go over worksheet. Discuss metric vs English measuring systems.

Clean up: Put small parts into ziplock bags. Be sure that each student puts an index card with their name on it into the ziplock bag.

Credits: This lesson is from Michelle Steever.