

Teacher's Guide

Activity 4 – Grades 6th – 8th

GOAL:

To learn about forest products

VOCABULARY:

dimensional lumber, plywood, engineered wood products

BACKGROUND:

Trees are an important part of all our lives. Trees provide food for animals and people; they provide habitat for animals and products for people. They help prevent erosion, they protect our watersheds, they clean the air, and they provide shade in the summer and beauty year round.

People use more than 5,000 different products from trees. The number one use for wood worldwide is fuel. In the U.S., the number one use of wood is lumber, followed by paper products.

In Oregon, we produce many products from trees, including traditional **dimensional lumber, plywood, engineered wood products** and paper products. We grow many different fruits and nuts in orchards, we grow more Christmas trees than any other place in the world and we are heavily involved in growing nursery stock.

All these industries contribute to the Oregon economy. In addition to top growers and manufacturers, Oregon leads the world in research and development opportunities in forestry and related fields.

STUDENT ACTIVITIES:

Define traditional dimensional lumber, plywood, and engineered wood products. (Dimensional lumber is standard “boards”, cut from logs. Plywood is made by peeling logs and gluing thin sheets of the wood (each sheet is a “ply”) together. Engineered wood products are relatively new and are made in a variety of ways. They include particleboard, strandboard, glulam beams, etc.

Divide your class in to groups of two to make an engineered wood product commonly referred to as particleboard. You will need sawdust (your school's woodshop or a lumber mill is a good source), small mixing bowls (margarine tubs are ideal), white glue, waxed paper and tongue depressors or popsicle sticks.

- Prepare the raw material. Each group needs to sort through the sawdust, removing any large particles. Each group should have approximately 1 cup of sawdust. At the factory, a machine would sort the raw material before processing
- Blend the sawdust with the white glue in the mixing bowl. Add the glue 1-Tablespoon at a time, until a thick paste is formed. This would be done mechanically in large quantities at the factory. A sealant would be added to make the end product water repellent.
- Transfer the mixture to waxed paper. Use tongue depressors to shape the mixture into a rectangular block shape. Try to make the shape uniform. At the factory, machines would form the blocks so each one was uniform.
- Let the particleboard dry partially, place another sheet of waxed paper on top and gently compress the particleboard. Set a book on top and let the particleboard dry for several days. The pressure and time will set the particleboard. In the factory, heat would be used to speed up the process.
- When the particleboard is dried, it can be sanded and painted. A piece of paper can be glued on top to simulate veneer.

Have each student choose a forest product that is made in Oregon. Research the following:

- What is the raw material for the product?
- Where does the raw material come from? Is it from Oregon? If so, what part of Oregon?
- How is the product made?
- Where is the product made?
- What is the purpose of the product?
- Who is the intended customer for the product?
- What sort of transportation is used to get the product to market?
- How is the product marketed and advertised?
- How many jobs are involved in making the product?
- Do you have this product in your home?

EXTENDED ACTIVITIES:

- Use strips of veneer and have students make their own plywood. Compare the process to making particleboard.
- Learn how paper is made. Visit: www.tappi.org
- Invite your Talk About Trees facilitator to visit and make paper with your students.
- Learn how pencils are made. Visit: www.pencils.com/
- Learn how pine trees provide chemicals for many products. Visit: www.pinechemicals.org/
- Have students design their dream home, without using any wood products! What could substitute for wood? Investigate the environmental consequences of using non-renewable resources.