

Equipment Display

This is a 10 - 15 minute lesson that should be done during their **popcorn break**. There will be either a feller buncher OR a skidder at Wood Magic depending on the location. Contact Beth Foley before the program to find out which one. Blanchard Machinery loans us this brand new equipment off their sale floor for FREE. Please do not let students climb on equipment.

FELLER BUNCHER

This machine is used to cut down trees at a logging site. It is designed to maximize the number of trees that can be harvested efficiently and minimize any damage to the environment.

- The *grapples* (claw-looking parts) are designed to hold a tree while it is being cut and to keep the tree upright. The head can hold several trees in this position.
- The *saw blade* is designed to quickly cut the tree off at the ground level, reducing waste and making a safer forest floor for people and machines to move through.
- The entire *head* can swivel 90 degrees, making it unnecessary for the rest of the machine to enter into the rows of trees it is harvesting.
- Holding several trees upright, the operator can carefully lay the trees down between other trees so that the skidder can drag them to the log deck.
- The *large wheels* on the machine are designed to minimize the impact on the soil. They do this by allowing the machine's weight to be distributed over a large surface area. By doing this, the impact on the soil is almost that of a human's footprint.

SKIDDER

A skidder is any type of heavy vehicle used in a logging operation for pulling cut trees out of a forest in a process called "skidding" in which the logs are transported from the cutting site to a landing. There they are loaded onto trucks (or in times past, railroad cars or flumes), and sent to the mill.

- The *grapple* on the back acts like a huge pair of fingers and allows the operator to pick up the end of 3 or more logs (depending on their size).
- The *decking blade* on the front can be used to push logs into a pile at the log deck so they can be picked up by a knuckle boom loader (see picture on poster) and placed on a trailer. It is also useful for smoothing out logging roads and helps protect the front of the tractor from limbs and debris.
- Notice the large tires on the skidder. Like the feller buncher, these minimize the impact on the soil.
- If at Harbison State Forest, compare to the old steam-powered log skidder.

Tree Cookies & Forestry Tools

This is a 10 - 15 minute lesson that should be done during their **lunch break** after they finish eating. No need to rush through this lesson – just get through what you can. A tree cookie, increment borer, DBH tape, and Biltmore stick will be available for use and located at the lunch tent. Feel free to bring in any other forestry tools you would like to show off.

- 1. Why do trees have rings?** (These are growth rings that are put on annually. Trees get these in their trunk and in their branches.)
- 2. Do you know why the rings have different colors?** (Each annual growth ring has two parts: a light ring *early wood* and a dark ring *late wood*. The early wood grows during the wet spring growing season. During the transition from the drier summer to fall/winter, growth slows and the late wood forms. You only count the light rings OR the dark rings when aging a tree.)
- 3. Count the rings and discuss what could affect their shape and size.** (The shape and width of the rings often differ from year to year because of varying annual growth conditions. Have the students guess how the following conditions could affect the rings: drought, competition, insect damage, fire scar, growth on an incline, etc.)
- 4. How could a forester age the tree without cutting it down?** (The forester would use an increment borer which is a hollow instrument made to drill into the center of the tree. It removes a long, narrow cylinder of wood called a *core sample*. The growth rings of the tree appear as lines on the core sample. Demonstrate how the increment borer works on a nearby pine tree.)
- 5. If a forester wanted to know the volume of a tree, what would he/she measure?** (Tree height and diameter – Students should be familiar with how to calculate volume. A forester needs to know the volume of a tree to determine its value and how the tree can be used.)
- 6. Take students over to a nearby pine tree and demonstrate how the DBH tape works.** (Measure the circumference of the tree at 4.5 feet high, reading the red side of the tape. This side is already converted to give you the diameter measurement.)
- 7. Show Biltmore stick conversion chart.** (This saves a forester a lot of time! If you feel comfortable, show how a forester can use this to measure height and diameter then calculate volume.)