

Handout H09-2. Ladder Fuel Experiment

Design a model of a tree. Its trunk is a lab support stand. Its branches are rods stuck through holes in the trunk. Its leaves are strips of newspaper. Your goal is to build a tree with a crown that does not burn when a fire burns the surface fuels beneath it. Your job could be easy—just put together a tree with no leaves. But your tree must also have *foliage* (leaves) to win – the more, the better. You have to figure out how much foliage to use and how to arrange it on the tree so the tree can survive a surface fire.

Procedure:

1. Place a support stand (metal post) in the center of the metal tray.
 2. Crumple up two half-pages of newspaper. These are your surface fuels. Flatten them out a bit, but make sure that some air can get between the layers.
 3. Cut or tear a line from one edge of the newspaper pieces to the middle. Then place both layers on the support stand base, with the stand's post at the center.
 4. Slide wire "branches" through the holes in the post. You may use as many or as few branches as you want.
 5. Use the long, narrow strips of newspaper for foliage. Slide foliage strips onto each branch. For short branches, you may shorten the newspaper strip. Use the branch to poke a small hole at the outer end of the foliage strip rather than using a punched hole, so the newspaper won't fly off the branch once you start burning.
 6. Lab groups will ignite their tinker trees one at a time. When the teacher tells you it's time to ignite yours, start the fire by igniting two corners along **one long edge of the metal tray**.
- Do not use any moisture on your tree or experimental setup before it is burned.
 - Do not move or remove your tree's foliage after you have underburned it.
 - Keeping score: After you have underburned your tinker tree, the teacher will assign it a score: the number of centimeters of branch still covered by unburned foliage.

