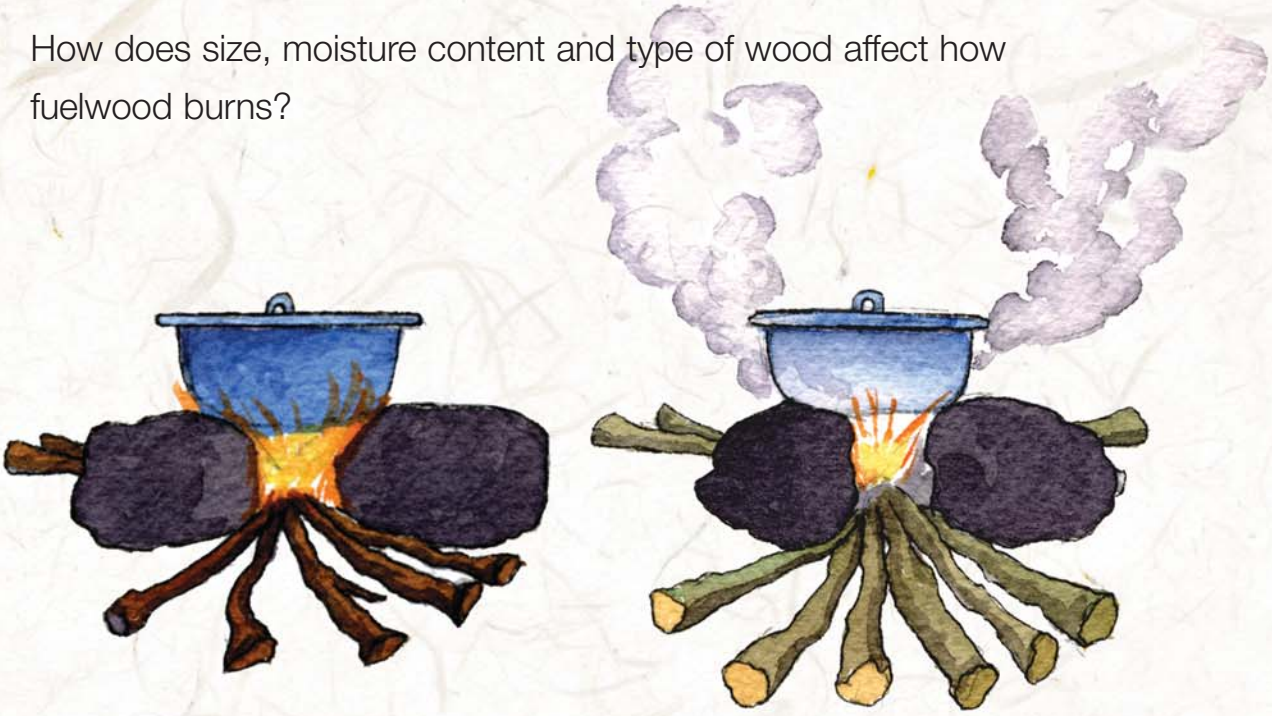
ACTIVITY

FUELWOOD EXPERIMENT

How does size, moisture content and type of wood affect how fuelwood burns?



What you need for the experiment:

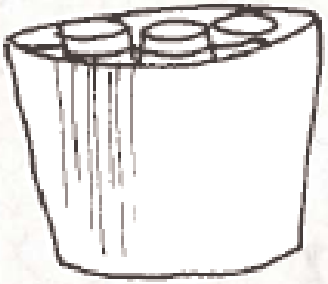
- Two three-stone fireplaces in a safe outdoor area
- Wood (as described below)
- Matches
- Water
- Two equal-sized cooking pots

Preparation

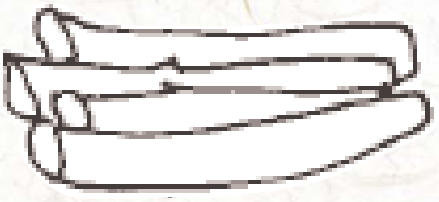
Collect wood for three experiments as follows:

1. Wet and dry wood

Find two pieces of wood the same size. Soak one of the pieces of wood in water for one day. (Or get one freshly cut piece of wood, and one piece of dry wood)



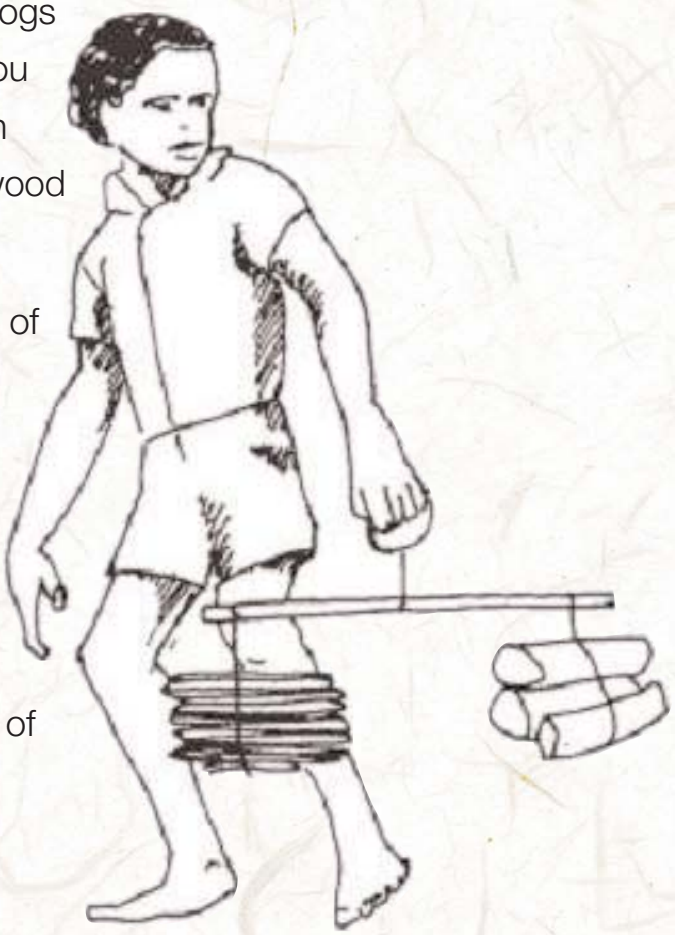
Wet wood



Dry wood

2. Logs and twigs

Take some dry wood from the same tree and weigh out two equal amounts — one in the form of logs and one in the form of twigs. You can use the technique shown in the picture to get two piles of wood that are the same weight.



Tie a bundle of logs to one end of a pole, and then tie a bundle of twigs to the other end. Keep adding twigs until the pole is balanced when hung from a rope tied to its middle. When the pole is balanced, you will have bundles of twigs and logs of equal weight.

Experiment

1. Build two three-stone fireplaces. Use the pile of logs and the pile of twigs to make two separate fires. Compare the way the fires burn. Which pile of wood ignites and burns faster? Time how long it takes to light each fire and how long it takes to boil a pot of water with each fire.

If you have a thermometer, you can measure the temperature at ground level at a given distance from each fire. Explain your results. (Hint: Which wood has a larger surface area exposed to the air?)

2. Get the two fires to burn at the same intensity. Then add the wet piece of wood to one fire and the dry piece to the other. Compare how they burn. How long does it take to light the two pieces of wood? Which gives off more smoke? Which gives off more heat? Explain your observations.

3. Don't forget to make some tea with the water when it has boiled!

Ask an adult to show you the effect of one or two puffs of cigarette smoke on a damp paper tissue. Blowing the smoke through the damp tissue will leave a brownish circle where the smoke has been absorbed. Imagine how blackened the lungs of a smoker, or of a person who spends time in a smoky kitchen must become!

SOURCE: OUTREACH HANDS ON SCIENCE: WOOD IT BURN?
BURNING WOOD EFFICIENTLY