Supplemental Activities

SMUD®
Energy Education & Technology Center

It's a Gas

Materials

- Plastic ziplock bags (one for each student)
- Yeast
- Leaves and leftovers

✔ Procedure

- Have students fill their bags with leaves, leftovers from lunch, and a pinch of yeast.
- Add a little water, if necessary, so that the mixture is moist. Force out as much air as possible by flattening the bag before closing.
- Put the bags in a warm place. Watch the bags for a week or two and have students keep a journal about what happens. The mixture should begin to decay. The bags should begin to expand and fill with biogas.

(See Elementary Biomass Infosheet at www.NEED.org)

The School House Still

Materials

- Bottle of grape juice
- Yeast
- Rubbing alcohol
- Matches
- Metal dish

✔ Procedure

- Open the bottle of juice and add a pinch of yeast. Recap the bottle and set it on a windowsill. Observe and explain the fermentation process. After several weeks, allow the students to smell the juice. Explain that the juice is turning into alcohol.
- Pour a small amount of the rubbing alcohol into the metal dish. Carefully light the alcohol to show that it can be burned as fuel. Discuss how alcohol from corn and other grains is mixed with gasoline for fuel.
- Have students experiment with other types of juices and their fermentation.

Wood Energy

Materials

- Digital scales
- Thermometer
- Heavy metal pan
- Matches
- Several types of easy-burning wood, cardboard, paper, etc.
- Beaker/can of water on tripod

✔ Procedure

- Weigh out identical amounts (a few grams) of the different types of wood and wood-products.
- Measure a small amount (~25mL) of water into a beaker and record the temperature.
- Burn each product separately, heating the water and measuring the increase in temperature.
- Make a graph of the results. Discuss the results and the different amounts of energy in the products. (If you don't have a lab, do this activity outside on a calm day.)