SMOG ALERT

One way that air pollution becomes more visible is when certain weather conditions create smog. Create your own smog in a jar.

MATERIALS: Glass jar; water; aluminum foil; two or three ice cubes; paper; ruler; scissors; matches.

DOING IT:

1. This activity should be done with adult supervision. Do not breathe in the "smog".

2. Cut a strip of paper about 15 cm x 1 cm. Fold the strip's length in half and twist the paper.

3. Make a "lid" for a glass jar by shaping a piece of aluminum foil over the open end of the jar. Remove the foil and put it aside.

4. Put some water in the jar and swish it around so that the inside walls of the jar are wet. Spill out the water.

5. Place two or three ice cubes on top of the foil lid to make it cold.

6. Light the strip of paper and drop it and the match into the damp jar. Put the foil lid on the jar and seal it tightly. Keep the ice cubes on top of the foil, in the middle. You must do all of this very quickly.

7. What do you see in the jar? How is this like real smog? **When you're finished, release the "smog" outdoors.**

8. *Extension:* Does your local newspaper or weather channel have a pollution index or other type of report on pollution in your area? Record this information over several days and see how it changes.

"Ozone" is a colourless gas made up of three atoms of oxygen, rather than the usual two. It can be a part of car and factory pollution. Near the ground, it's one of the more dangerous components of smog. But 16 to 40 km above the Earth's surface, it forms a layer than keeps out the sun's most damaging ultraviolet rays (a sunburn is a painful example of what these rays can do). Ozone that pollutes our ground air can't get into the protective ozone layer. And human-produced gases like "CFCs" (chlorofluorocarbons) -- used for some insulation, mattresses, food packaging, air conditioner and refrigerator coolants, and as cleaners for electronic equipment -- are "eating" holes in the ozone layer. It takes up to one hundred years for CFCs to disappear from the environment, so we should use much less of them now. We should also produce less ozone at ground level.

Smog occurs with heavy concentrations of smoke and chemicals near ground level. The term "smog" was first used in the early 1900s to describe the combination of **sm**oke and thick f**og** that at times hung over London, England. London-type smog occurs when moisture in air condenses on smoke particles, forming tiny smog droplets. Today's smog also contains chemicals "baked" by the sun. Weather conditions such as lack of wind or a "thermal inversion" can cause smog to build up in an area. A thermal inversion occurs when a layer of warm air settles over a layer of cool air that lies near the ground. This condition prevents the smog from rising and scattering. Mountain ranges near cities may also trap smog in an area.

Smog is a visible example of air pollution. There are also kinds of air pollution that you can't see or smell. Some of this pollution is made up of poisonous chemicals. Other types of air pollution are naturally-occurring gases, like carbon dioxide, that become harmful when there is too much of them. Air pollution is harmful to people, animals, plants, and buildings.

Topics: Pollution; Atmosphere; Weather Conditions; Chemical Reactions.