What Causes an Air Inversion?

What happens during an air inversion? An adult must help you with this experiment.

**What to do:** Rinse one jar with very cold, other with hot water. Dry them thoroughly. With the index card between them, place the jars mouth to mouth with warm jar on the bottom.

Ask the adult to light the end of the twine so it smokes. Direct the smoke into the bottom jar, as you lift the index card. When the smoke fills the bottom jar, pull out the card.

Try the experiment with the cold jar on the bottom and the warm one on top. What happens this time?

**What happens:** When the warm jar is on the bottom, the smoke rises from the lower to the upper jar. When the cold air is on bottom, the smoke is trapped and cannot rise.

**Why:** The smoke rises as the warm air rises and the cold, denser air sinks. But when the warm air is trapped below the cold air, the smoke is also trapped.

This is what happens in the earth's atmosphere when a layer of warm air holds down the dust particles. This is an "air inversion." If the air is polluted, your eyes may smart, and you may cough or find it difficult to breathe.

The Air Pollution Control Laboratory records the air pollution index, which is computed based on the amount of sulphur dioxide, carbon monoxide, and smoke in the air. The average daily index is 12. An emergency level is reached at 50.

**YOU NEED**
- two glass jars
- hot and cold water
- index card
- safety match
- piece of twine