NATIONAL CHEMISTRY WEEK

Teacher's Answer Key

What's Happening? Challenge:

Gases

Question:
Would you expect the atmospheric pressure on the ground to be higher or lower on a relatively warm day than the atmospheric pressure on a relatively cold day?

Answer:
The scientist places a cylinder over the burning candle. The flame heats the local air and its density decreases as the gaseous particles gain kinetic energy and the distances between them increases. As the air density decreases the air rises. The rising warm air blocks the movement of denser, colder air to the flame. Thus, the combustion reaction is deprived of oxygen and the flame extinguishes.

When the scientist rests an aluminum foil divider at the top of the cylinder the warm air can rise out of one side of the cylinder and colder air can descend via the other side of the cylinder. Thus, a convection current forms that is able to supply the combustion reaction with oxygen and it does not cease. However, when the scientist removes the divider the warm air again blocks colder air from reaching the flame and it extinguishes.

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