SECTION 7: SOLAR ENERGY AND THE GREENHOUSE EFFECT
LAB

Westminster College

INTRODUCTION

Our atmosphere holds in heat, protecting us from becoming too hot or too cold and allowing life on Earth. Without this greenhouse effect, the Earth would be a frozen wasteland at -15 degrees Celsius. When the Sun strikes the Earth's surface the light energy is changed to heat (infrared energy). Carbon dioxide, water vapor, chlorofluorocarbons, and methane in our atmosphere absorb this heat energy, trapping it and heating the Earth. Man has increased the carbon dioxide level in our atmosphere 25% since 1860 by burning fossil fuels, coal, natural gas, oil, and burning the rainforests (this burning accounts for 25% of the world's carbon dioxide emissions). This has resulted in an increase in the Earth's average annual temperature.

ASSESSMENT ANCHORS ADDRESSED

S4.A.3.1 Use models to illustrate simple concepts and compare the models to what they represent.

S4.A.3.3 Identify and make observations about patterns that regularly occur and reoccur in nature.

S4.D.3.1 Describe Earth's relationship to the sun and the moon.

PURPOSE

Students test the greenhouse effect with a variety of experiments.

MATERIALS

For the class:	**For each pair:**
Solar cell	1 gallon zip-lock
Motor	2 thermometers
2 alligator clip wires	Black construction paper
	*scotch tape
	Worksheet: Testing the Greenhouse Effect

*Teacher provides items marked with **