Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period \_\_\_\_\_\_\_\_

**Independent Work Greenhouse Effect Lab**

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| --- |
| **QUESTION/PURPOSE:** **Manipulated Variable (MV)** **Responding** How does the enclosure of an atmosphere affect temperature? |
| **HYPOTHESIS (IF, THEN, BECAUSE)** **:** **Manipulated Variable (MV)** **Scientific Reason (WHY)** **Responding Variable (RV)** |
| **Manipulated Variable Units** | **Responding Variable Units** | **Controlled Variable(s) Units****1.****2.** |
| **PROCEDURES: Manipulated Variable (MV)** **Responding Variable (RV)** **Controlled Variable(s)**1. Set up your lamp so that the bulb is 30 cm above the table.
2. Cover the bottom of each box with about 5 cm of soil.
3. Lay a thermometer on the surface of the soil in each box.
4. Cover the opening of one box with a single layer of plastic wrap. Leave the other box uncovered.
5. Take the readings from both thermometers and record them in the Beginning Temperature on the data table.
6. Place both boxes side by side under the lamp. Be sure that the thermometers are evenly spaced, so that neither is closer to the lamp than the other.
7. Turn on the lamp.
8. Start timer.
9. Without touching the thermometers, record readings from both thermometers every minute for 15 minutes.
 | **MATERIALS Measuring Device**Boxes (2)Ruler (metric)Soil (1 gallon)Thermometers (2)Colorless plastic food wrap  (12” x 12”)TimerLamp |

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| **DATA TABLE: Title (Manipulated vs. Responding)**  **TITLE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |
| --- |
|  |
| **Time****(minutes)** |  **Temperature of Containers****(F°)** |
|  | **Covered with Plastic Wrap** | **Uncovered** |
| 0:00 (beginning Temp) |  |  |
| 1:00 |  |  |
| 2:00 |  |  |
| 3:00 |  |  |
| 4:00 |  |  |
| 5:00 |  |  |
| 6:00 |  |  |
| 7:00 |  |  |
| 8:00 |  |  |
| 9:00 |  |  |
| 10:00 |  |  |
| 11:00 |  |  |
| 12:00 |  |  |
| 13:00 |  |  |
| 14:00 |  |  |
| 15:00 |  |  |
| Total Temperature Difference between the Beginning Temperature and the Ending Temperature |  |  |

 |

Directions: Answer the following questions. They do not need to be typed

1. What was the total temperature difference between the beginning temperatures and the ending temperatures of both boxes?

Covered box \_\_\_\_\_\_\_\_\_\_ Uncovered box \_\_\_\_\_\_\_\_\_\_

1. Which box demonstrated the greatest temperature difference? Why do you believe this happened?

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1. How would you relate this experiment to the atmosphere and the greenhouse effect? Why?

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