Background Information:

The Greenhouse Effect

In this activity, you and your partner will observe the greenhouse effect by placing a thermometer in a glass jar. You will place a thermometer in the direct sun (or in the direct light of the lamp) and allow it to rest undisturbed like this for several minutes so that you can collect an accurate reading of the air temperature at that location. You will then place the jar over the thermometer and observe and record the temperature readings over several minutes; include both your procedure and observations. Finally, you will analyze the information you collected.

Materials List:

- Large glass jar
- Thermometer
- Sunny day or sun lamp (or regular lamp with an incandescent bulb)

Key Question

What was the question that you wanted to answer?	*Directions:* Write the question for the investigation. The question should be specific and be able to be investigated.
	Key Components • Specific (one general thought, does not combine two or more questions) • Is able to be investigated

Hypothesis

Claim that answers your question based on the evidence	*Directions:* Develop a claim about what you think is going to happen.
	Key Components • Expresses a cause and effect relationship • Is testable • Incorporates prior knowledge

Plan

How Will You Investigate the Question?	*Directions:* Describe the plan that you will use to study your question and analyze your hypothesis.
	Key Components • Plan is easily repeatable by others • Plan describes the use of materials • Plan is in a logical order

Data

Evidence from this investigation	*Directions:* Record all of the evidence that has been collected. Evidence can be any data that helps answer the question appropriately and completely. The focus of this section is on what was found during the investigation.
	Key Components • Data (from an investigation and/or other sources, such as observations, reading material, archived date, etc.) • Appropriate (data applies directly to the question) • Sufficient (uses enough data to completely answer the question and determine a finding on the hypothesis)

Conclusion

Summarize Your Findings	*Directions:* Develop a conclusion for your investigation. The conclusion should contain clear thoughts and vocabulary that has been studied. This section focuses on the answer to the question and either proving or refuting the hypothesis. This should be done by linking the hypothesis to the data using logical reasoning.
	Key Components • Use precise and accurate language • Use scientific vocabulary • Provide clear logical thoughts • Use evidence and reasoning to support or refute the hypothesis

Analysis and Conclusions

1. How did the temperature change over time?

2. Why was it useful to measure the temperature both inside and outside of the glass jar?

3. **Analyze** -How do the temperature readings you collected help explain temperatures in Earth's atmosphere?

4. **Predict**- How would the results of this investigation have been different if you had used a much larger jar? Record and test your prediction.