**Termite Lab Experiment – Student Materials**

**\*\*Keep this document. You will design your lab over several days.\*\***

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_

Group Members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

With your assigned lab group, read the background information and then follow the instructions to design the termite lab that your group will perform next week. Raise your hand to have your teacher initial any time it is required BEFORE moving on to the next step.

**Background Information**



**Introduction**

*Reticulitermes flavipes* is one of several species of underground-dwelling termites native to North America. Termites are an important part of the decomposer food chain as they help break down wood into nutrients that enter the soil. Termites are a eusocial species that live in colonies of between 60,000 and 1 million termites. Each member of the colony must be able to communicate with others in order for the entire colony to thrive.

**Behavior**

Termites use special chemicals called **pheromones** to send messages about food, building materials, safety, and danger. Termites produce many different types of chemical pheromones. Some are volatile (evaporate quickly) and become airborne. Others are not as volatile and remain on surfaces where other colony-mates smell them and then follow their trail. Termites can release a volatile “alarm” pheromone to alert the rest of their colony to danger, which spreads quickly through the air to give the alarm and then disappears. Longer-lasting contact pheromones can be exploited (used) by humans. For example, pest exterminators use chemicals that are similar to contact-pheromones to lure termites into traps.



When a termite comes to an intersection between two trails, it must make a choice. Termites will always choose the trail with the more preferred pheromone. However, termites will not switch from one trail to another if they are not intersecting.

**Handling**

Termites have thin skin and they dry out quickly. Only remove them from the moist container for a few minutes at time. Never release live termites into the local environment. Termites may harbor diseases that could decimate the local population.

**Guiding Questions For Reading:**

How do termites communicate? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How do pheromones help termites to navigate?

What happens if a termite comes to an intersection between two trails?

**Materials Provided:**

|  |  |
| --- | --- |
| · Colored pens · Colored pencils · Colored markers· Paper to draw trails on | · 1 brush to pick up your termite· 1 petri dish with moist filter paper· 1 termite (can be used for multiple trials)· 1 stopwatch timer |

1. **Scientific Question:** Write the question that you want to test in your experiment. Make sure your question is appropriate for the materials provided and the background information given.

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2. **Variables:** For your scientific question, identify the following:

a. Independent variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. Dependent variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. Three important things to control in this experiment:

 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



3. **Hypothesis:** Write a hypothesis (in the “If...then...because…” format) for the scientific question you are asking:

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4. **Procedure:** Outline the procedure (steps) you will follow as you conduct this experiment. Be specific. (Add numbers if you need to.)

1. Gather materials (including safety gear).

2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



5. **Data Table:** Create a data table where you can record your observations while carrying out the experiment.

6. **Graph:** First determine if you are making a BAR or LINE graph. Then graph your data.







7. **Conclusion:** Write a conclusion for your experiment using the “Claim, Evidence, Reasoning” format.

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**Claim**

☐ Restate the hypothesis or describe the relationship between the variables

 **Evidence**

☐ Give two or more data sets, with units

☐ Explain the data

**Reasoning**

☐ Provide relevant evidence from the text

☐ Cite the evidence correctly

☐ Explain how the text evidence is connected to the claim