**What Strategies Are Involved With Solving A Problem?**

**I. Introduction**

Scientists try to understand the world around us by making careful observations. These observations often present problems. In order to solve these problems, scientists sometimes use a scientific method. A scientific method is an orderly process that usually includes a series of steps similar to these:

1. Determine the problem. State what you want to find out.

2. Make a hypothesis. State the prediction that you want to test.

3. Test the hypothesis. State what steps you will take to design an experiment to test your

hypothesis. Make observations. Record what happened during your experiment.

4. Analyze the results. Explain any patterns you see. Organize your observations and data into a

usable form.

5. Draw conclusions. Is your hypothesis correct? Describe what your observations and data

indicate about your hypothesis. Decide whether your hypothesis is correct. If not, determine

why your hypothesis is incorrect and propose a new hypothesis.

In this Virtual Lab you will use a scientific method to determine how to create the most efficient compost pile. Compost is decomposed matter used as fertilizer or as mulch (material put around plants to help them retain water). Compost is made by combining four basic ingredients: green materials, such as grass clippings, green leaves, and vegetable and fruit scraps; brown materials such as dried grass and leaves, twigs, straw, and sawdust; air; and water. In addition to being good for plants, compost is good for the environment because it makes use of materials that otherwise would go to waste.

**II. Procedure**

1. Start the activity by going to the following website :

[www.glencoe.com/sites/common\_assets/science/virtual\_labs/ES01/ES01.html](http://www.glencoe.com/sites/common_assets/science/virtual_labs/ES01/ES01.html) .

2. Determine the problem. State what you want to know.

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3. State a prediction that you want to test.

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4. Test your hypothesis, changing the following variables : Brown to Green Balance,

Water Concentration, and / or Number of Turns per Month.

5. Once you have your variables set, click on September 1st to start the compost pile.

Click Reset to perform a new test.

6. Record your data in the table below. Perform 10 tests.

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| **Green**  **Materials**  **(%)** | **Brown**  **Materials**  **(%)** | **Water**  **Concentration**  **(%)** | **Number Of**  **Turns Per**  **Month** | **Efficiency**  **Rating**  **(High, Medium,**  **Low)** |
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**III. Analysis & Conclusions**

1. Which situation produced the most efficient compost pile?

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2. Which situation produced the least efficient compost pile?

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3. What happens to organic wastes that are decomposed in a compost pile?

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4. What are three benefits of having a backyard compost pile?

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