

## Chemistry

### Unit #1—Introduction to Chemistry

#### Investigation of the Scientific Method with Paper Airplanes

##### **Introduction**

Take a moment to look around you. Where did all that “stuff” you see come from? All the stuff in the universe is made from building blocks form in stars such the big ones in the sky. This stuff changes form.

Scientists are naturally curious. They continually ask questions about and seek answers to all that they observe in the universe. One of the areas in which scientists work is the branch of science called chemistry. Your introduction to chemistry has been an everyday occurrence.

Why is this important to us? You and all the objects around you are composed of matter. By studying matter and the way it changes, you will gain an understanding of your body and all the “stuff” you see and interact with in your everyday life.

##### **Purpose**

The purpose of the laboratory is to determine which paper airplane traveled the farthest based on the type of paper used in the experiment.

##### **Materials**

Three Types of Paper

Measuring Tape

##### **Pre-Laboratory Questions**

1. What is the scientific method?
2. What are quantitative measurements?

3. What are qualitative measurements?
4. What is a hypothesis?
5. What is a variable?
6. What is the independent variable?
7. What is the dependent variable?
8. What is the control?

##### **Procedures**

1. Select three different types of paper.
2. Observe five qualitative and five quantitative measurements.
3. Develop and write the hypothesis.
4. Cut the pieces of paper to the same size.
5. Have one group member fold each paper into airplanes to ensure they are folded the same way.
6. Go to an area of the classroom.
7. One group member launches each airplane three times.
8. After each launch, record the number of tiles the plane traveled.

##### **Graph**

1. For each plane, calculate the average distanced traveled in tiles.
2. Using the averages, create a bar graph that shows the average distance traveled versus type of airplane. The type of airplane will be on the ‘x’ axis and average tiles traveled will be on the ‘y’ axis.

##### **Questions**

1. Which airplane traveled the farthest? Explain your reasoning.

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2. Which airplane traveled the least? Explain your reasoning.