



Period: \_\_\_\_ Group #: \_\_\_\_

Names: \_\_\_\_\_

\_\_\_\_\_

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## 2. CONDUCTING THE EXPERIMENT

### LOOP PLANE EXPERIMENT

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**OBJECTIVE:** The objective of this experiment is to properly demonstrate all steps of the scientific method, including:

1. Identify a problem (question)
2. Develop an experiment designed to answer the question
- 3. Conduct an experiment**
- 4. Record data**
- 5. Analyze results**
6. Draw a conclusion
7. Communicate your conclusion

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#### **MATERIALS:**

- 1 plastic straw
- 1 strip of paper 1.5 cm wide by 9 cm long
- 1 strip of paper 2 cm wide by 12 cm long
- scissors
- tape

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#### **DIRECTIONS:**

1. Remember to start with a 'standard loop plane' (as outlined on the proposal form) to use for comparison. This will be **Plane A** on your data form.
2. Construct other types of loop planes (**Plane B** and **Plane C**) and conduct your experiment in a way that will answer your research question (problem).
3. Record data for at least three trials for each different plane that you construct. Record full, detailed quantitative data (wing area, flight distance, flight time, flight speed) and qualitative observations (*words!*) for each plane on the back of this page.
4. Record additional information about each plane and each flight on additional pages.
5. Draw a diagram of at least one aspect of your experiment. This could be a diagram of the plane, of the launching setup, or any other important aspect of your experiment.
6. Complete at least one graph of quantitative data that you will use to help answer your question.

#### **In Summary:**

- Run at least three trials for each plane
- Record complete data for at least three trials of each plane
- Each person must draw at least one diagram (separate paper)
- Each person must complete at least one graph (graph paper provided)

Total surface area (length x width) of wings on Plane A: \_\_\_\_\_

<b>PLANE A</b>	Distance Traveled	Time of flight	Speed of Flight	Observation Notes
TRIAL 1				
TRIAL 2				
TRIAL 3				
AVERAGE				

Total surface area (length x width) of wings on Plane B: \_\_\_\_\_

<b>PLANE B</b>	Distance Traveled	Time of flight	Speed of Flight	Observation Notes
TRIAL 1				
TRIAL 2				
TRIAL 3				
AVERAGE				

Total surface area (length x width) of wings on Plane C: \_\_\_\_\_

<b>PLANE C</b>	Distance Traveled	Time of flight	Speed of Flight	Observation Notes
TRIAL 1				
TRIAL 2				
TRIAL 3				
AVERAGE				