

COME FLY WITH US
EXPLORING EXPERIMENTAL DESIGN

Come Fly With Us

September 3

DATE

LABEL

- Title pg. 6 Come Fly With Us
- Write the title – Purpose on the left margin

Purpose

How will changing the direction that the paper helicopter blades are folded affect the “flight” of the helicopter?

- Skip a line.
- Write the title – Hypothesis on the left margin

Hypothesis

- What do you think will happen?
- What is your educated guess?

If we change the direction of the paper helicopter blades, then we think_____.

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Purpose

How will changing the direction that the paper helicopter blades are folded affect the “flight” of the helicopter?

Hypothesis

If we change the direction of the paper helicopter blades, then we think_____.

Materials

- Model of helicopter
- Scissors
- Pen or pencil

Procedure

1. Cut out the helicopter.
2. Cut along the dotted lines.
3. Fold along the solid lines: section C behind section B, section A behind sections B and C, and section D behind sections A, B, and C.
4. Complete the helicopter by folding blades perpendicular to the body of the helicopter.
5. Blade X should have the dot up and blade Y should be in the opposite direction with the square down.

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Data

- Write the title – Data on the left margin
- Create two data tables

X-up & Y-down	Trial 1	Trial 2	Trial 3
Your name			
Partner's Name			

X-down & Y-up	Trial 1	Trial 2	Trial 3
Your name			
Partner's Name			

6. Stand on a chair and hold helicopter by the top of the “T” at shoulder level.
7. Drop the helicopter and observe whether it spins clockwise (cw) or counterclockwise (ccw). Repeat this test three times.
8. Refold the blades so that the square on blade Y is facing up and blade X is facing down.
9. Stand on a chair and hold helicopter by the top of the “T” at shoulder level.
10. Drop the helicopter and observe whether it spins clockwise or counterclockwise. Repeat this test three times.

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- What was the independent variable?
- What was the one thing that was changed?

The independent variable was folding the blades in different directions, with the black circle up and the white square down, or with the black circle down and the white square up.

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- What was the dependent variable?
 - What data did you collect?

The dependent variable is the direction of spin, clockwise or counterclockwise.

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List at least 3 things you should try to keep constant. (controlled variables)

- holding the helicopter in the same place (on the body versus the wing)
- holding it at the same height
- making sure there is no cross breeze each time
- using the same helicopter
- adding no extra force when letting it go each time

Remember the Purpose?

Purpose

How will changing the direction that the paper helicopter blades are folded affect the “flight” of the helicopter?

Do you have a question you would like to test?

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- Title pg. 8 Come Fly With Us
- Write the title – My Questions on the left margin

My Questions

- Write at least three questions you could test with your helicopter.
 - ***Remember that a question has a capital letter at the beginning and a question mark at the end.
- Skip a line.
- Write the title – Class Questions on the left margin

Class Questions

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September 4

- Title pg. 9 Come Fly With Us
- Write the title – Purpose on the left margin

Purpose

- Write the question you would like to test.
- Skip a line.
- Write the title – Hypothesis on the left margin

Hypothesis

- What do you think will happen?
- What is your educated guess?

Example: If we hold the helicopter from the bottom, then we think it will take 30 minutes to land.

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- Skip a line.
- Write the title – Procedure on the left margin
- A procedure is written without using pronouns (I, you, & we).

Procedure

- 1.
- 2.
- 3.
- 4.
- 5.

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Data

- Record measurements in a data table.

	Trial 1	Trial 2	Trial 3
Your name			
Partner's Name			

Title bottom half of page Observations

Observations

- Record (write down) observations.

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Title page 11 Analysis

Analysis

- Summarize your data. Tell me about your results and observations.

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Title page 12 Conclusion

Conclusion

(use this writing prompt)

I did this experiment to learn____. I found out that____. I know this because____. This information would be useful to ____ because____.