An experiment is done to see if temperature affects the speed of a chemical reaction. The experiment is conducted at room temperature, a high temperature, and a low temperature using 100 mL of each chemical. The time it takes the reaction to finish is determined using a stopwatch.

On your paper, identify:

1. Manipulated variable
2. Responding variable
3. Operational definition of the dependent variable.

An experiment is done to see if temperature affects the speed of a chemical reaction. The experiment is conducted at room temperature, a high temperature, and a low temperature using 100 mL of each chemical. The time it takes the reaction to finish is determined using a stopwatch.

On your paper, identify:

1. Controlled variables
2. Write a research question
3. Write a hypothesis

Paper Helicopters

Part A: Observing & Inferring

Record your ***observations and inferences*** of some possible things that could affect the flight.

These things that could affect the flight are called ***VARIABLES***

Part B: Comparing and Contrasting

What is the ***same*** about B, and C:

If we were going to have a race between helicopters B and C, there are things we must keep the same so the contest is fair.
These are called ***CONTROLLED*** variables

Part C: Controlled Variables

- List the things (besides the thing listed above) that we must keep the same so the contest is fair:

Part D: Identifying Variables

- The one thing that is different between helicopters B & C is ***BLADE LENGTH***

- This thing that is different is called the ***INDEPENDENT/MANIPULATED*** variable

Part D: Identifying Variables

- The thing about the helicopters that we will measure as a result of this difference is ***FLIGHT TIME***

- This is called the ***DEPENDENT/RESPONDING*** variable

- The way we will measure the responding variable is called the ***OPERATIONAL DEFINITION***

Part E: Questioning

- The question we want to answer is called the ***RESEARCH QUESTION***

- Use the variables for B & C to write a research question on the lines below. Insert the things about the helicopters

How does blade length affect flight time?

Part F: Hypothesizing

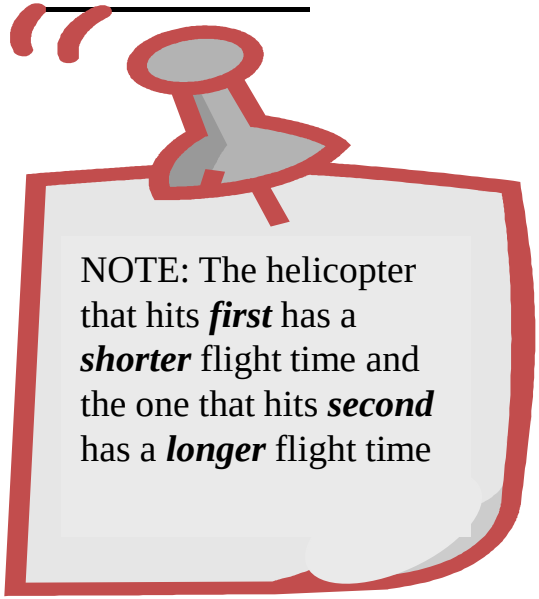
- To write a hypothesis we need to write an ***"IF . . . THEN. . ."*** statement

  – Write your hypothesis for B & C. Insert the things about helicopters B & C

- If blade length increases then flight time _____

Part G: Experimenting

- **Write a 1 in the column below the letter of the helicopter that hits first and**
- **Write a 2 in the column below the letter of the helicopter that hits last for each trial**



Part I: Writing a Conclusion

- A ***CONCLUSION*** is a judgment based on the results of an experiment.

- Use your results to from the experiment with B & C to write a conclusion.

"As blade length increased, flight time _____

A study is done to determine how the mass, wheel size, and board length affect the speed of a skateboard.

On the back of your warm-up slip, identify the:

1) Manipulated variable(s)
2) Responding variable(s)
3) Possible controlled variable(s)

Is this an example of a good experimental design? Why or why not?