

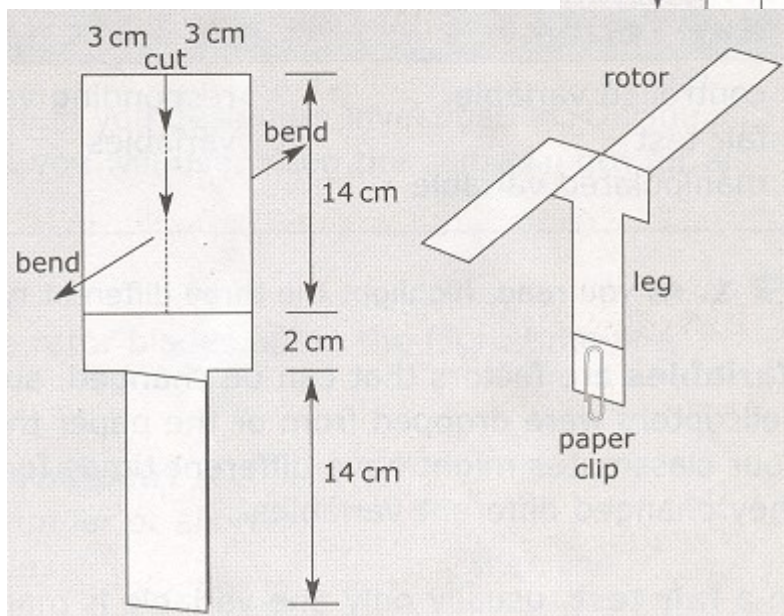
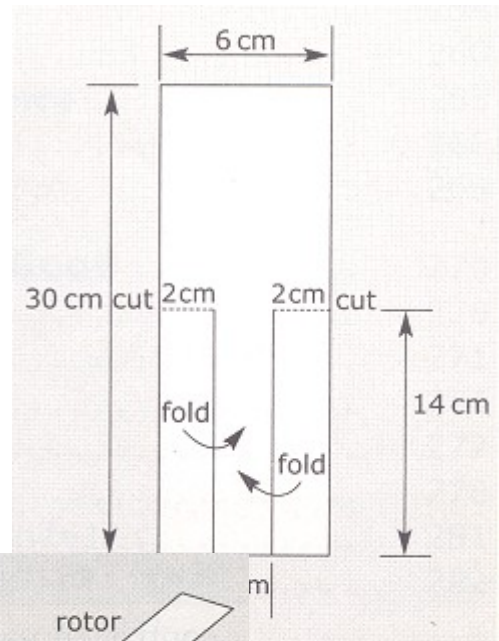
Names: _____

Scientific Method Practice: Paper Helicopters Lab SNC2P

Materials: paper
scissors
ruler
pencil
paper clip
stopwatch

Construct Your Helicopter:

1. Cut out a strip of paper 6 cm by 30 cm.
2. Mark your strip of paper as shown in the diagram at right.
3. Cut and fold your strip of paper as shown below.



4. Make an additional cut to make the rotor blades. Open up the rotors.
5. Attach the paper clip to the bottom of your paper helicopter.
6. Hold the helicopter 2 m above the floor, paper clip down, and release it to test it.

Question: How will changing the length of the blades of your paper helicopter affect the flight time?

The manipulated variable is the: _____

The responding variable is the: _____

Identify at least one variable you will have to control: _____

Hypothesis: When the blades get shorter, the flight time will _____.
(get longer, get smaller, or stay the same?)

Show your completed helicopter to your teacher and ask your teacher to initial here: _____

Procedure:

1. Measure the length of the rotor blades: length A = _____ cm.
3. Trial 1: Stand so that you are holding the helicopter 2 m above the floor.
4. Release the helicopter. Use the stopwatch to measure the time from when the helicopter was released to when it lands. Record this time in Table 1 below.
5. Repeat Steps 3 and 4 for Trial 2 and Trial 3.
6. Using a pair of scissors, cut 2 cm off each rotor blade: length B = _____ cm.
Repeat Steps 3 – 5 for this new length.
7. Continue cutting 2 cm off the rotor blades each time and repeating Steps 3 – 5.

Remember that nothing else about your helicopter can change when you change the length!

Observations:

Table 1: Flight Time for the Paper Helicopter For Varying Rotor Blade Length

| Length of Blades (cm) | Flight Time for Trial 1 (seconds) | Flight Time for Trial 2 (seconds) | Flight Time for Trial 3 (seconds) | Average Flight Time (seconds) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------------|
| A: | | | | |
| B: | | | | |
| C: | | | | |
| D: | | | | |
| E: | | | | |

(Remember: For the average, add the values and divide by 3.)

Show your completed table to your teacher and ask your teacher to initial here: _____

Analysis: Graph your data. Length should be on the horizontal axis and average flight time on the vertical axis. Attach your graph to this sheet.

Conclusion

Look at your prediction? Were you correct? _____

When the blades got shorter, the flight time _____.

Show your completed graph and conclusion to your teacher and ask your teacher to initial here: _____