Paper Helicopter Investigation

Name: _____

There are many different types of experiments but in this type of experiment the aim is to determine how one variable affects another variable. All other variables have to be kept the same so that at the end we can say for sure how (or whether) one variable affects another. It has to be a "fair" test. (If many things are varied at once, then it becomes impossible to say which of the variables that you altered were responsible for the outcome.)

Aim: To find out how varying the length of the rotors on a paper helicopter affects the time that it takes to fall a given distance. (All other factors that could affect the time will be kept constant, like the weight of the paper helicopter, the width of the rotors, and the distance that it falls.)

Method:

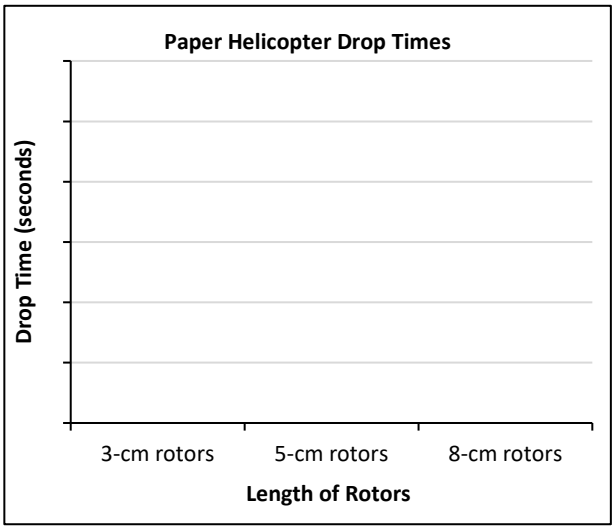
1. Cut out the paper helicopter templates. Cut along the solid lines and fold along the dotted lines. The rotors should form a slight V. Slide a paper clip onto the paper from underneath.
2. Drop each one from a fixed height and time how long it takes to reach the floor. Record the result in the table. Do 6 trials for each one and then calculate an average time.
3. Complete the line graph (using the average time).

Results:

	Time for Paper Helicopters to Hit the Floor (seconds)						
Rotor Length (cm)	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Average
3							
5							
8							

Questions:

1. Read the aim again and then complete the sentence.



In this investigation, we found that increasing the _____ of the rotors results in an increase/a decrease (circle the correct response) in the _____ that the paper helicopter takes to fall.

2. Give an explanation for the results. _____

_____

_____

_____

_____

_____

_____

3. The variable that a scientist changes (to see what effect changing it has on something else) is called the **independent** variable. What was the independent variable in this prac (that you changed)?

_____

4. The variable that is affected by a change in the independent variable is called the **dependent** variable (since it depends on the independent variable). What was the dependent variable in this prac? _____

_____

5. All other variables were kept the same. These are called **controlled** (or **fixed** variables). (We could have changed these variables but we kept them the same.) List three variable that were controlled in this experiment. _____

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