

INTRO. TO ROTOCOPTER

SCIENTIFIC METHOD

- ① Ask a Question**
- ② Background Research**
- ③ Hypothesis**
- ④ Experiment**
- ⑤ Collect Data/Observations**
- ⑥ Draw Conclusions/Analyze**
- ⑦ Repeat/Revise Experiment**

ROTOCOPTER

What factors affect the rate at which a rotocopter falls?

Read text, do internet search.

Longer wings will make the rotocopter fall slower.

Plan/conduct an experiment of 3 trials with wings of different lengths to determine if wing length is a factor. All other factors are kept constant.

Observe/record the time it takes for rotocopters to fall to the ground from a fixed distance. Generate data table and graph.

Examine all the data and decide if your hypothesis about longer wings was correct.

To be valid, the exp't must be able to be repeated. It also might need to be changed.

Variables:

The word **variable** basically means something can change or vary. There are 3 main variables used in science.

Independent Variable

- what the investigator decides to do in the experiment
- ie. change the mass of the rotocopter

Dependent Variable

- the outcome of the experiment
- ie. how the rotocopter is affected by a change in mass

Controlled Variable(s)

- conditions kept constant so as to not influence the outcome
- ie. length of wings, shape of wings, height of drop, etc.

ROTOCOPTER LAB

Experiment:

- Build and decorate a rotocopter and perform 3 trials (time to fall to the ground)
- Change one variable and perform another 3 trials
- Change a different variable and do 3 more trials

Poster (use computer, attach to poster):

- Attach **rotocopter**
- Create a **data table** to record all trials and averages with title, units, and data
- Create a **bar graph** with title, axes names and units “Avg. Time to Fall (y) vs. Indep. Variable (x)” (3 bars, 1 for each rotocopter)
- Write a **few paragraphs** about your experiment and discuss:
 - ☺ your initial hypothesis (for both changed variables)
 - ☺ how the 3 scientific variables were represented in your experiment
 - ☺ results and how they relate to your hypothesis
 - ☺ possible sources of error (at least 3) and how they could be reduced