

Helicopter Investigation

The first operational **helicopter** was built in 1936.

Helicopters are extremely useful as they can takeoff and land vertically as well as flying forward, backward and laterally.

A big factor in helicopter design is the length of the rotors/wings.

For heavy lifting, a large rotor works best, but short blades reduce drag and ultimately allow for higher maximum speeds.



Given below is the data for the experiment conducted to find the relation between the length of the rotor/wings of a paper helicopter and how long it stays in the air.

| Wing Span (cm) | Fall time (s) | | | |
|-------------------|---------------|---------|---------|---------|
| | Trial 1 | Trial 2 | Trial 3 | Average |
| 16 | 1.54 | 1.68 | 1.70 | 1.64 |
| 14 | 1.45 | 1.38 | 1.35 | 1.39 |
| 12 | 1.13 | 1.13 | 1.20 | 1.15 |
| 10 | 0.88 | 0.83 | 0.86 | 0.86 |
| 8 | 0.76 | 0.78 | 0.73 | 0.76 |

Complete the following

Write an Aim:

Write a Hypothesis:

Identify the different variables

Independent:

Dependent:

Control:

What kind of graph would you use for this data?

Plot a Graph:

Analyse the graph:

Use the graph to find the time it takes for the paper helicopter to reach the ground for a wingspan of 13cm.

Discussion:

What are the factors that could go wrong while conducting this experiment?

How can this experiment be applied to real life?

Can you identify the scientific idea behind this experiment?