



EduTrend Contents

G4C · SCIENCE AND EXPERIMENTATION GAMES · MIDDLE SCHOOL

Paper Helicopter Investigation

Change one variable on a paper helicopter, time its fall and look for a pattern in your results

Ages 12–14

Level: Intermediate

45 minutes

Pairs · up to 30

Activity 04

Inside: activity at a glance · step-by-step session plan · facilitator notes · 3 student worksheets · assessment checklist

ACTIVITY 04 · AT A GLANCE

Paper Helicopter Investigation

Pairs make paper helicopters from a template. They choose one variable to change, such as wing length, and keep everything else the same. They drop each helicopter from the same height three times, time the falls and calculate an average. Pairs plot results on a simple graph, describe the pattern and suggest why it happens.

Learning outcomes

By the end of the session students can:

- plan a fair test;
- repeat measurements;
- calculate an average;
- describe a pattern.

KEY WORDS

variable · fair test · repeat · average
· graph · pattern

CURRICULUM LINKS

Science: forces and air resistance;
working scientifically. Maths:
averages and graphs.

1**WONDER**
Ask a question**2****PREDICT**
Commit to a guess**3****TEST**
Try it safely**4****RECORD**
Write it down**5****EXPLAIN**
Why did it happen?**6****TIDY**
Clear up and wash
hands

Materials (per pair)

- Helicopter templates and paper
- Scissors and paper clips
- Stopwatches
- Worksheets 1, 2 and 3

Before the session

- Print templates.
- Set a safe drop height.
- Model timing.
- Plan pairs.

SAFETY

Drop from a safe, stable height such as standing on the floor with an arm raised; no climbing on chairs.

ACTIVITY 04 · SESSION PLAN

Step by step

Repeating each drop three times shows why averages matter.

Time	What happens	Say or ask
0–5 min Wonder	Drop a helicopter and a scrunched sheet.	<i>“Why does one fall slower?”</i>
5–10 min Plan	Choose one variable.	<i>“What will you keep the same?”</i>
10–35 min Test	Make, drop, time, repeat.	<i>“Are your times consistent?”</i>
35–45 min Explain	Plot and describe patterns.	<i>“What pattern do you see?”</i>

CHALLENGE CARD (print or copy onto the board)

Run a fair test with repeats and describe the pattern in your results.

ACTIVITY 04 · FACILITATOR NOTES

The science game know-how in brief

Recording results lets evidence be compared, not just remembered.

Changing one variable at a time makes a test fair.

Common ideas to listen for

- “One drop is enough.” Repeats make results reliable.
- “Changing two things is faster.” You won’t know which mattered.
- “Odd results should be hidden.” Discuss them.

Adapting the activity

Support

Provide a results table with averages partly filled.

Stretch

Test a second variable and compare.

WORKSHEET 1

Plan

Name: _____

Class: _____ Date: _____

Plan your fair test.

Plan

I will change	I will measure	I will keep the same

WORKSHEET 2

Results

Record times.

Times (s)

Setting	Drop 1	Drop 2	Drop 3	Average

WORKSHEET 3

Conclusion

Reflect.

The pattern was... because...

FOR THE TEACHER

Assessment checklist

Use during the session. One sheet covers up to eight students; copy as needed.

Student	Plans a fair test	Repeats and averages	Describes a pattern

Suggested codes: W = working towards · E = expected · G = greater depth

ABOUT THIS ACTIVITY

Paper Helicopter Investigation is a sample activity from the EduTrend Contents G4C Science and Experimentation Games programme (middle school, level: intermediate). Every activity in the programme follows the same format: a practical challenge, a clear session plan, facilitator notes and ready-to-print worksheets, so that teachers, club leaders and parents can run it without extra preparation.

Full 15-, 20- and 32-week programmes are available from EduStore at edutrend.org.

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