# Plan for Focused Assessment of Science

| **Topic:**<br>Forces | Year 5<br>Age 9-10 | Title: Spinners |
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| **Working Scientifically**<br>**Do:** Measure, taking repeat readings | **Conceptual Knowledge Context**<br>Identify the effect of air resistance that acts between moving surfaces. |
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## Assessment Focus

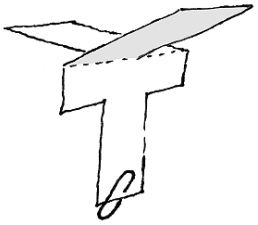
- Can children improve accuracy by repeating measurements?
- Can children identify patterns in results?

## Activity

Explore: make and drop a spinner. In groups consider variables and formulate a question *e.g. How does the length of wing/number of paper clips/size of paper affect the time it takes to fall?* Group roles may be useful e.g. dropper, timer, recorder, fair test checker.
Groups or individuals to draw graphs then consider patterns in results.

## Adapting the activity

**Support:** Provide table to collect readings and axes for graph.
**Extension:** Draw own table to collect repeat measures. Plot results on a line graph independently.
**Other ideas:** What if…we dropped it from a higher position, changed the shape of the wings, the material etc. Why do sycamore seeds spin?



## Key Questions

- What do you predict will happen?
- What range of lengths/paper clips will you test?
- What kind of graph will you draw? Why did you choose a (line graph)? How did you choose your scales on the graph?
- Why did you repeat your measurements? Are there any measurements which you would repeat again?
- What happened to the time when changed the ….? What happens when you add more paper clips/make the wings longer?
- Is there a pattern in your results? Can you describe it?
- Can you explain why there is this pattern?
- Can you explain any anomalies in your results?

## Assessment Indicators

**Not yet met:** With support, measures and records results in given table / graph. Makes comparisons e.g. *five paper clips fell quickly, but one paper clip was slow.*

**Meeting:** Takes repeat measurements and either chooses middle value or finds mean average (may need support to find mean) to plot points on a line graph and comment on the general pattern, e.g. *the more paper clips, the longer it took*. Some explanation in terms of air resistance.

**Exceeding:** Uses repeat readings to construct a line graph independently, is able to explain why repeat readings improve reliability, and spots anomalous results. Can describe pattern and shows evidence of understanding of forces e.g. *the longer the wings the bigger the air resistance so it takes longer to fall, until the wings get too big*.