

# LEARNING RESOURCE

## PAPER SPINNER

### MATERIALS

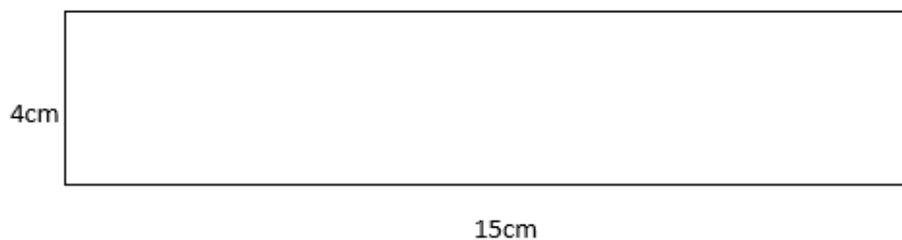
- Paper
- Pencil
- Ruler
- Paper Clips (optional)

### PREPERATION

- None required

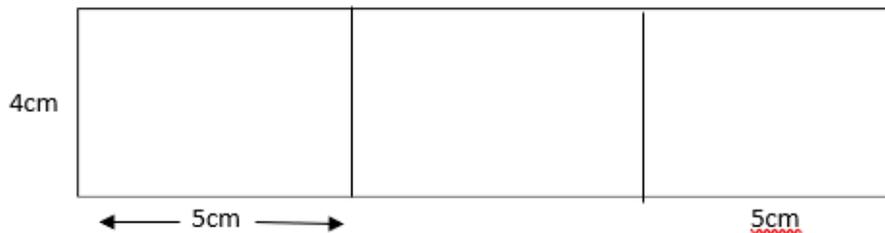
### INSTRUCTIONS

1. Get a piece of A4 paper and measure a strip, 4cm wide by 15cm long, then cut out.



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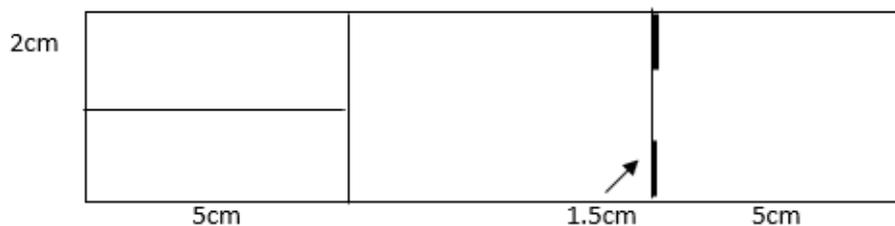
2. Measure 5cm from each end and draw a line across the strip.



3. At one end of strip measure 2cm from the side and draw line down the middle, to the first 5cm line, then cut along that line. Fold one side forwards and the other backwards.

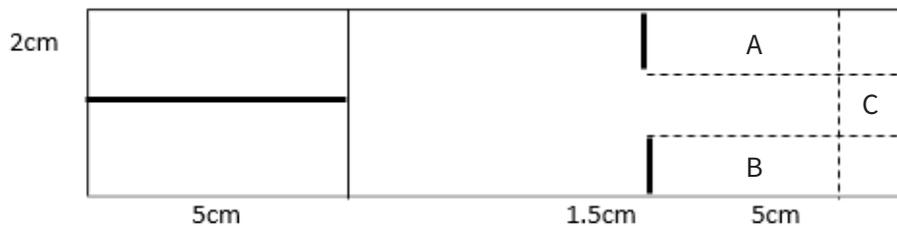


4. At the other end measure in 1.5cm, from each side, at the 5cm mark, then cut along the 1.5cm lines.



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5. Fold back either side (A and B), where you have cut in, then fold up bottom to hold in place (C).



6. Hold above your head, using finger and thumb, by the middle section, with the last section you did pointing down and let go.

It should spiral to the ground like a sycamore seed. The greater the height that you drop it from, the more times it will spin.

## EXTENSION

- Can you change the way that your spinner works. Now that you have the basic plans for making a spinner can you think of things that you could change to make it work differently?
- Does the shape of the propellers matter?
- Does the number of propellers matter?
- Does the size matter?
- Does the type of paper you use make any difference?
- If you add paperclips or blu-tac to the bottom, what happens?
- Why not try making lots of different spinners and compare how they work?

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## SCIENCE BEHIND THE SPINNER

Air is made from lots of tiny little things called molecules. We can't see them but if we wave our hands around we can feel them in the breeze that is created.

When we drop our paper spinners the bit in the middle at the bottom creates a centre of gravity, which means that it pulls the spinner down to the ground. In order to get to the ground the spinner has to push through all the air molecules. At the same time the air molecules want to move around all over the place, so when the propeller pushes into them, it gets in their way, so they push it out of their way and carry on moving. This is what makes our spinner spin.