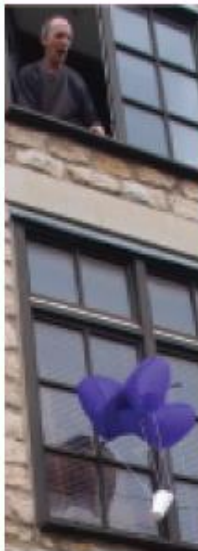




## ACTIVITY 5 | EGG PARACHUTE



### STEM Learning Objectives:

-  **Science:**  
Explore falling objects and the effects of air resistance.
-  **Technology:**  
Engage in an iterative process of designing and making.
-  **Engineering:**  
Design, make, test and improve a product.
-  **Maths:**  
Measure time; compare duration of events.

### WHAT YOU NEED:

#### Materials:

- Large piece of thin material, e.g. broken umbrella with the spokes removed, bin bag, part of an old lightweight raincoat
- Plenty of packaging material, e.g. bubble wrap, packaging foam, cotton wool, egg box, yogurt pot, foam cup
- Thin string
- A hard boiled egg
- A raw egg



#### Tools:

- Scissors
- Transparent sticky tape
- Stopwatch



Can you spot any hazards? How can you reduce the risks?

### WHAT YOU DO:

The aim is to construct a parachute to allow an egg to be dropped out of an upstairs window onto a hard surface without it breaking. Here are some suggestions:

1. Tie four or more strings near the corners or edges of the piece of thin material so that it will act as a parachute.
2. Use the hard boiled egg initially. Package it well, particularly underneath, to cushion the impact when it lands.
3. Attach the other end of the strings to the egg package or basket without getting the strings tangled up!

Ask an adult to hold the parachute by the middle, with the egg package hanging down, drop it out of an upstairs window onto hard ground (e.g. concrete). Time the descent of the egg and then check whether it has broken.

Modify and improve your design as required; for example you could make a larger parachute to slow the egg down more (time the descent to see if this has increased). You could change the number of strings or re-position them to improve your parachute, and/or use more packaging underneath the egg.

Once you are happy with your design, place the raw egg in the package instead of the hard boiled egg. Once it has descended, check whether the raw egg has broken.



### STEM Explanation:

The egg and parachute are pulled downwards by gravity.

As they move down the air pushes against them.

The parachute is relatively large; the air resistance gives rise to an upward pull, slowing down the descent of the egg.

The egg must be packaged well to absorb and cushion the impact when it hits the ground.

To prevent the egg from breaking, you can try increasing the air resistance, cushioning the egg better, or both.



SCIENCE EXPERIMENT

Draw and annotate your parachute here:

What was the result of your first test?

Explain how you improved or refined your design: