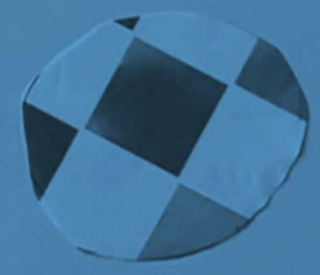




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Instructions**

# Flying mobile

## What you need

- 4 x A4 sheet card (old cereal box is a good substitute)
- Old ice cream container lid
- String – 12 pieces x 60cm in length
- Pencils/textas for colouring
- Glue
- Scissors
- Optional – 4 x paperclips

## What to do

- Print off or trace the template sheet
- Cut out all the pieces shown on the fold(dotted lines indicate fold lines)
- With 2 strings in between, one at the front of the plane and one at the rear of the plane, glue the body piece of the plane together, to form one body piece double thickness.
- Colour in, or decorate all pieces
- Fold wing pieces along the dotted lines to form zig, zag shapes.
- Place glue on the inside of the wings from the middle fold, up to the other folds, then glue the wings onto the body of the plane, by attaching the middle fold to the base of the plane under the cockpit section of the plane.
- Place glue on the inside of the tail rudder from the middle fold up to the other folds, then glue the tail rudder to the plane body, by attaching the middle fold of the tail rudder to the base of the plane on the rear tail section of the plane body.
- Cut out a centre section of the ice cream container lid, to leave a solid rim. This will form the mobile frame.
- Tie 4 strings evenly around the ice cream container lid. Gather the 4 strings up to the same length and tie in one knot about 10cm from the top.
- Fold over the 4 strings at the top to form a loop, and tie in a knot over the lower knot. This will form a loop to hang the mobile.
- Tie each plane onto the frame, keeping the planes horizontally level, but at different lengths to each other to make the arrangement more interesting.
- Attach a paper clip to the nose of each plane for extra weight and stability.
- Hang in an area with a slight breeze, and watch the planes fly



# Aircraft and flight facts

- The first controlled and sustained human flight was credited to the Wright Brothers on December 17, 1903.
- There are five types of Aircraft classifications
  - Airplane – single-engine or multi-engine land and sea.
  - Rotorcraft – helicopter or gyroplane.
  - Lighter-Than-Air – balloons or airships.
  - Powered Parachutes – land and sea.
  - Weight-Shift-Control – land and sea.
- Over the course of time from 1903, it is estimated that there have been over 150 000 aircraft in the world
- Planes have wings that feature an aerofoil shape, this is important as it helps overcome the effect of gravity pulling down on the plane. The aerofoil shape is the cross section shape of the wings that looks like a teardrop shape with a flat bottom
- The wing creates lift as they moves through the air, a process that can be explained by Bernoulli's principle. Because of the aerofoil shape, air flows faster over the top than the bottom, creating higher pressure underneath the wing which then pushes the plane up through the lower air pressure.
- Disturbed air and friction create drag as the plane moves forward, slowing it down.
- An engine provides thrust to move the plane forward at a speed great enough to overcome drag and allow the wings to create the lift necessary to fly.
- Airships and blimps are lighter than air and use buoyancy for flight. They are typically filled with gas (such as helium) that is less dense than the surrounding atmosphere.
- Bats are the only mammals that can achieve sustained level flight.

## Challenge:

Can you make a paper plane?

How far can you make it fly?

Make your favourite best flying paper plane and send us a picture of it and let us know how far it can go by posting it on Facebook and tagging us @ Newcastle libraries.

