

GREAT GLIDER SHARE

Great
Science
Share
for SCHOOLS



Glider Construction Instructions

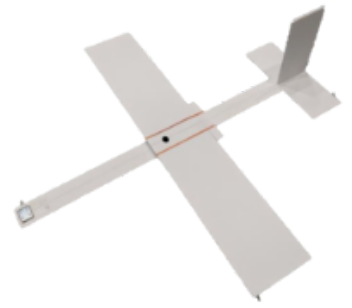
A step-by-step guide to making Dr Ben Parslew's glider!

For 5-7 year old pupils, teachers may prefer to pre-make the glider frame (see steps 1-9). Pupils can then make and attach wings of different materials for their enquiry.

For 7-14 year olds, pupils can work independently or in groups to construct the glider.

RESOURCES

- Template (A4 or A3)
- Construction material - stiff cardboard or foam board (A3 or A4)
- Cutting mat
- Ruler
- Pencil
- Scissors and/or craft knife
- Glue gun
- Stapler
- Ballast weight: 5g (A4 glider) or 10g (A3 glider) Blu-tack
- 3x rubber bands



Use recycled materials for your gliders. Collect cereal boxes, shoe boxes and other materials

HEALTH & SAFETY

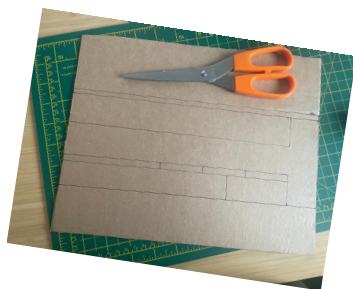
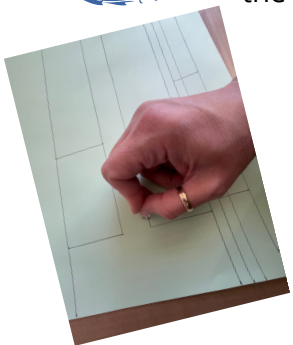
Teachers and pupils should adhere to their school or organisation health and safety policies at all times. Further advice is available from CLEAPSS or SSERC (Scotland).

INSTRUCTIONS

1

Cut out the glider sections using the template

Using the size appropriate template (A4 or A3), use a ruler to draw all the cutting lines on your construction material. Carefully and precisely, cut out the seven glider pieces, taking care not to bend or fold.



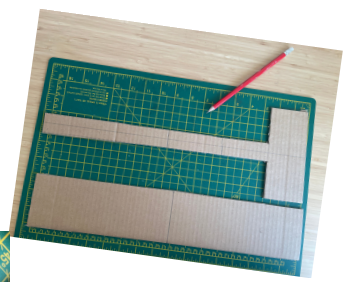
DISCLAIMER: This activity sheet was written for The Great Science Share for Schools. The author(s) and the Great Science Share for Schools are not liable for the actions or activity of any persons who use this resource or in any of the suggested further resources. We assume no liability with regard to injuries or damage to property that may occur as a result of using this information. These activities are designed to be carried out by pupils working with an adult. The adult is fully responsible for ensuring the activity is carried out safely. You can access further Health & Safety guidance from CLEAPSS www.cleapss.org.uk and SSERC www.sserc.org.uk

(c) Copyright 2023 The University of Manchester



2

Draw the construction lines on the fuselage and wing as shown on the template (dotted lines). These lines assist with gluing the pieces together accurately - they should not be cut along.



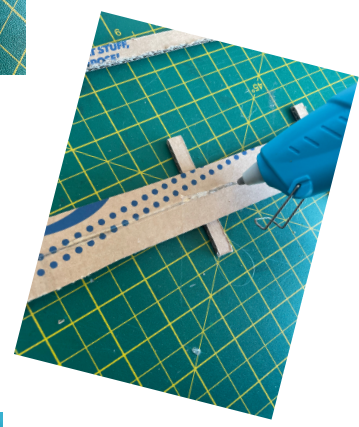
3

Use a hot glue gun to stick the wing supports on the two parallel construction lines drawn across the fuselage. Once in place, apply some additional hot glue along the outside edge to hold securely in place.



4

Use a hot glue gun to stick the thin launch strip to the underside of the fuselage. Again, apply some additional hot glue to length of the launch strip to firmly hold in place.



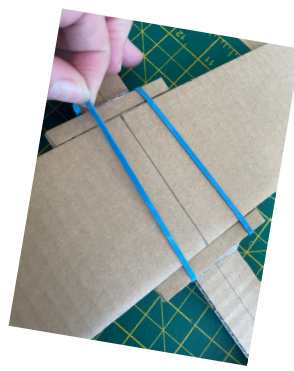
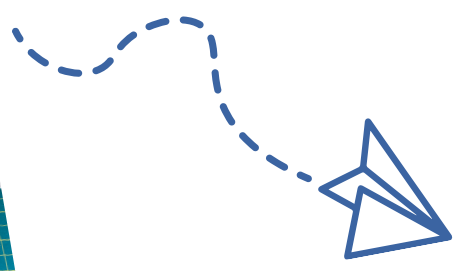
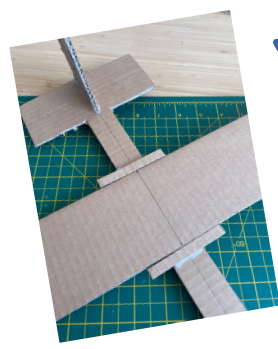
5

Use a hot glue gun to stick the fin in place on the tail plane, ensuring that it is lined up on the construction line drawn in step 2. Maths link - is it perpendicular? How could you check?



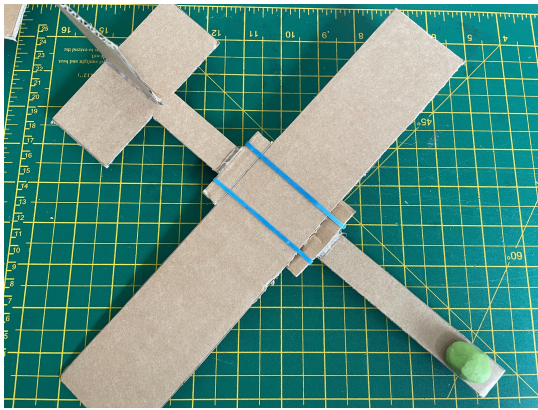
6

Attach the wing with two rubber bands wrapped around the wing and wing supports, parallel to the fuselage.



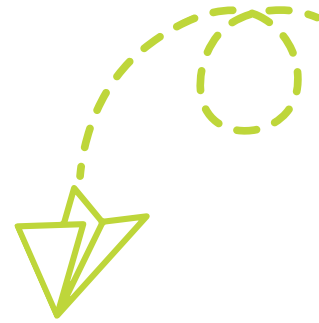
7

Attach a ballast weight to the front of the fuselage, either with Blu-tack or with a small piece of tape. The weight can be a mass, paperclips or a lump of Blu-tack.



For an A4 glider: you need a 5g mass
For an A3 glider: you need a 10g mass

(1 standard paperclip is 1g)



8

Optional: Construct a launcher

Take a rectangular piece of stiff card, approximately 10cm by 15cm. Lightly score down the centre line to help with folding the card in half, length ways.

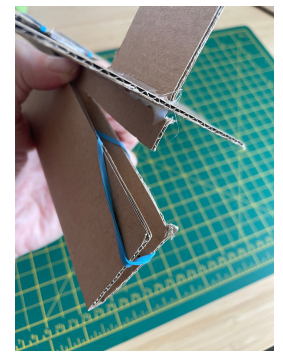
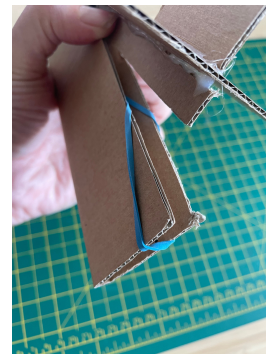
Open out the card. Inside the fold, staple the end of an 8cm rubber band to the end of the card. Two staples will hold the band securely in place.



9

To launch, stretch the rubber band the length of the card, while closing the fold. Wrap the end of the band around the card to hold it in the stretched position.

Place the launch strip of the glider inside the folded cardboard launcher so that the stretched band is wrapped around the launch strip. Pull back your glider, a fixed distance (you can decide this in class but doing this ensures you are increasing the reliability of the results), to add extra tension in the rubber band and release.



WING

FIN

**TAIL
PLANE**

FUSELAGE

TAIL PLANE

WING SUPPORT

WING SUPPORT

WING SUPPORT

**A4
TEMPLATE
ENLARGE TO
A3 IF
REQUIRED**