DATASHEET

ELECTRIC PLANE LAUNCHER

N89BH

WARNING

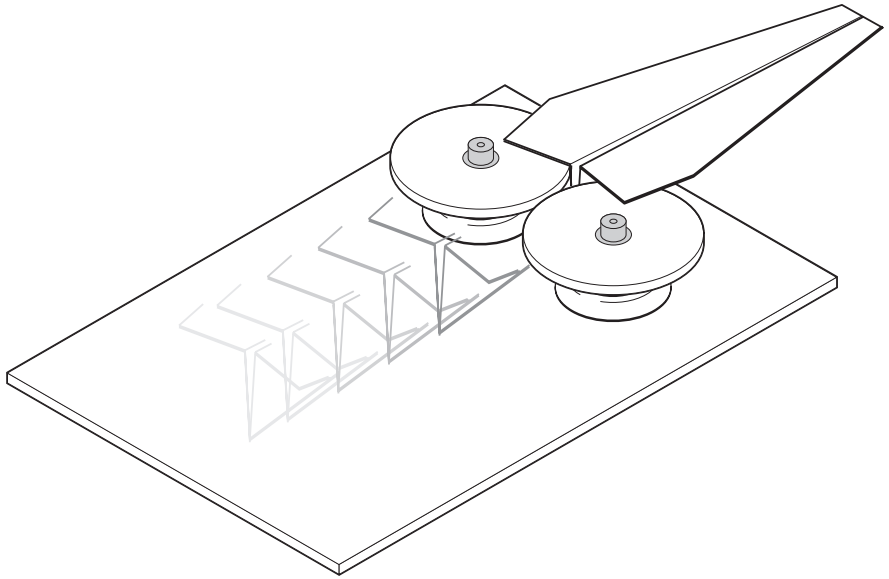
This is not a toy. It is an educational kit and must be used under adult supervision. This product is not suitable for children under 3 years. It contains sharp or small parts that could be dangerous for young children.

Manufactured and Supplied by Teaching Resources
The Electric Plane Launchers kit is one of a number of innovative educational products designed at Middlesex University to interest young people in science and technology. Please ask your supplier for more details.

Science Museum Website
For more information about the Science Museum, visit the website: *www.sciencemuseum.org.uk*

LIT0018

ELECTRIC PLANE LAUNCHERS

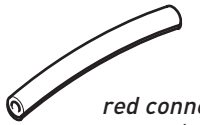


Middlesex University

teaching resources

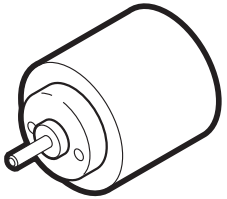
science museum

KIT CONTENTS

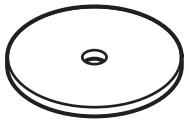


red connecting sleeve (8)

pulley (4)

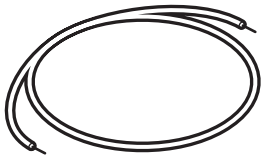


motor (4)

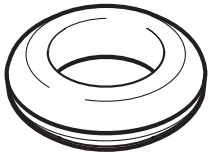


rubber disc (4)

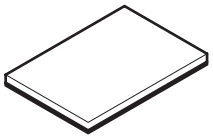
screwdriver



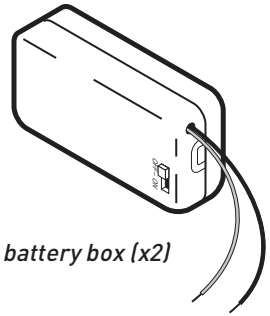
wire



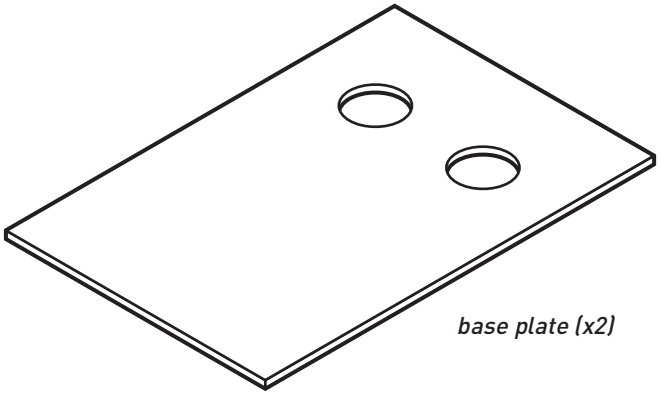
rubber ring (4)



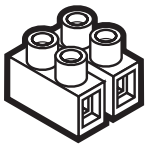
sticky pad (6)



battery box (x2)

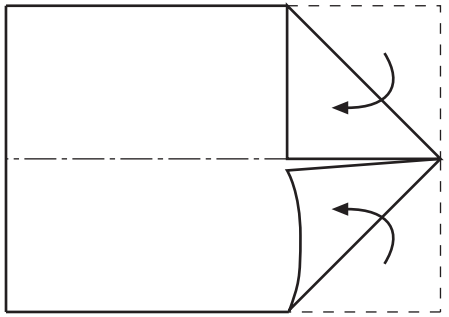


base plate (x2)

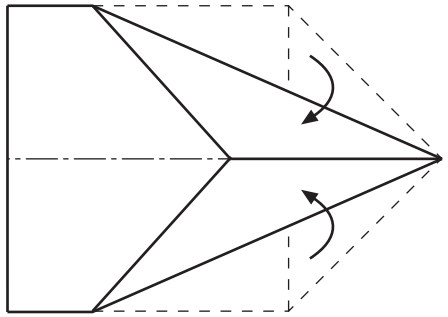


terminal block pair (2)

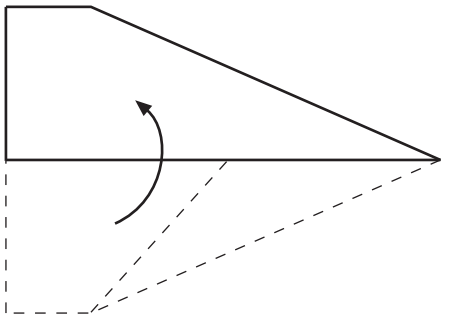
HOW TO FOLD A PAPER PLANE



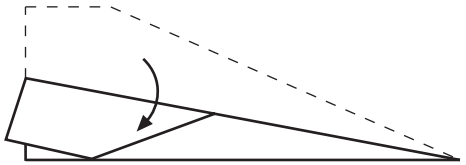
1. Fold two corners of a sheet of paper as shown.



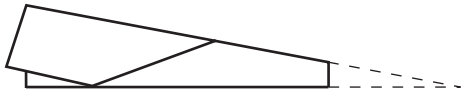
2. Fold again to make an arrow shape.



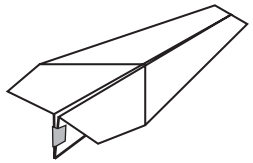
3. Fold the sheet in half along its length.



4. Fold each side to make the wings.



5. Cut the front off.

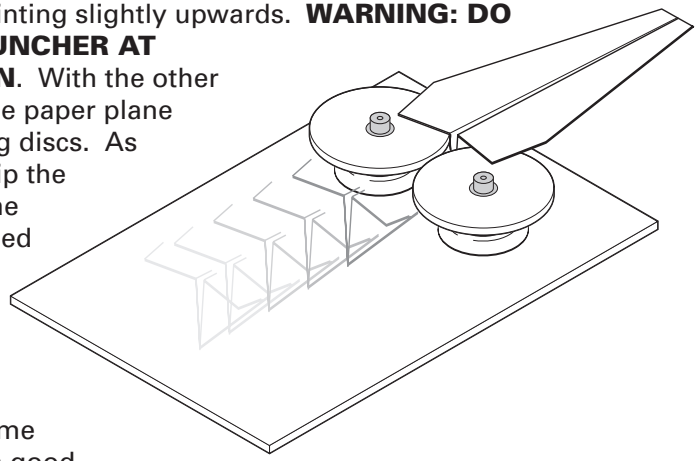


6. Fold the wings out. Use a piece of sticky tape on the front and back to hold the plane together.

USING YOUR ELECTRIC PLANE LAUNCHERS

Fold a piece of paper to make a paper plane. One way of making a paper plane is shown on the next page.

Switch on the plane launcher and hold it in one hand with the rubber discs at the front pointing slightly upwards. **WARNING: DO NOT AIM THE LAUNCHER AT ANOTHER PERSON**. With the other hand, gently slide the paper plane towards the spinning discs. As soon as the discs grip the plane let go of it. The plane should be pulled through and launched at high speed.

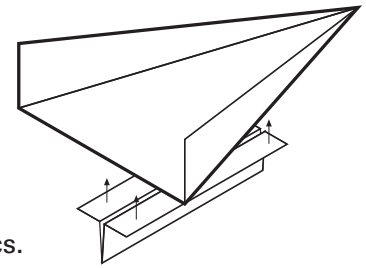


Note: It may take some practise to achieve a good launch. If you are having problems check that the gap between the discs is not too big. Also, make sure you allow a few seconds for the discs to speed up before launching a plane.

WHAT NEXT?

- Try out some different paper plane designs. You might get some ideas from books or the internet. Which designs fly farthest? Which designs stay in the air the longest? Can you make an acrobatic paper plane?

  Note: the paper plane must have a vertical base strip for the launcher to grip. For paper planes with a flat base a separate 'launch strip' may be stuck on with tape.



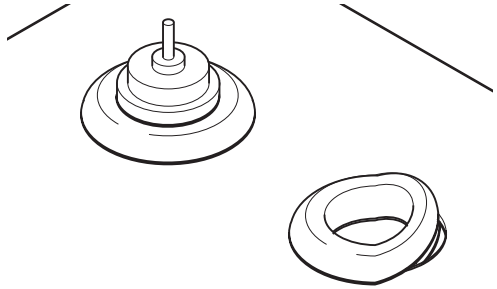
- Design your own paper plane graphics.
- Design a guide for your plane launcher to help line a plane up before takeoff.

ELECTRIC PLANE LAUNCHERS

Your electric plane launchers have been designed to launch paper planes at high speed. With your launchers you can try out different paper plane designs to see which ones fly farthest or which ones do the best acrobatics. There are two launchers in the kit, so why not organise a competition?

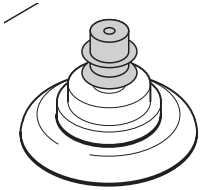
ASSEMBLING YOUR ELECTRIC PLANE LAUNCHERS

- Push the rubber rings into the base plate holes.

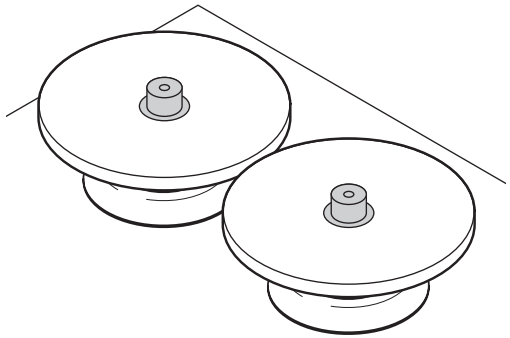


- Push the electric motors into the rubber rings. They will be very tight, but a tiny amount of washing up liquid on the rubber will help. **You may need some help with this.**

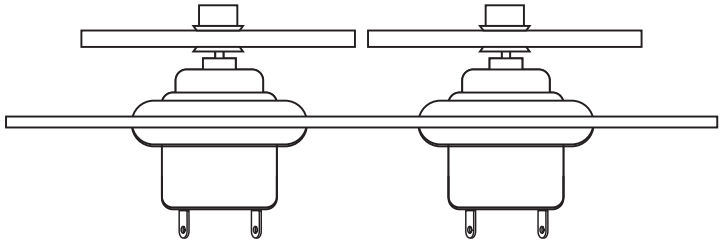
- Push a pulley onto each motor spindle. Do not push the pulley all the way down the spindle - it could rub and slow the motor down.



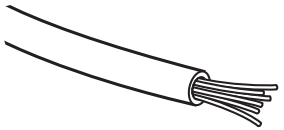
- Push a rubber disc onto each pulley as shown.



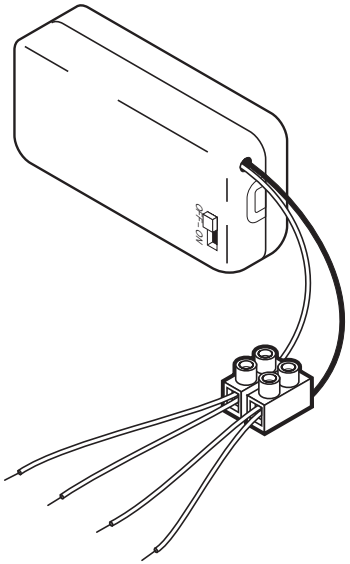
- Adjust the motor positions so that the rubber discs are level. There should be a gap of about 1mm between the discs.



- Cut the wire in half to give two pieces - one for each launcher. Take one piece and cut it into four equal lengths. Strip the insulation off the ends using scissors or wire strippers and twist the bare wire strands together.

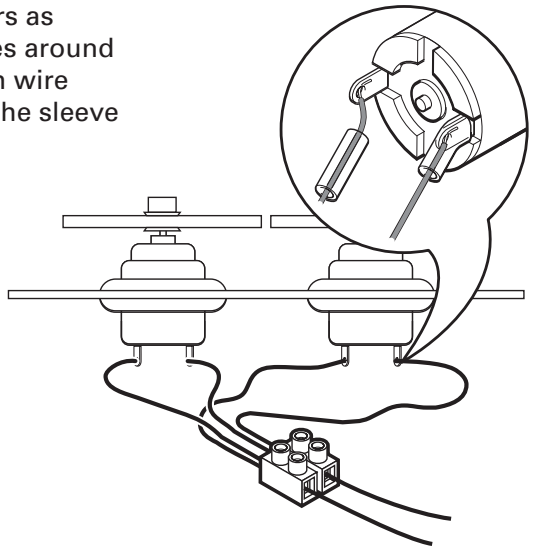


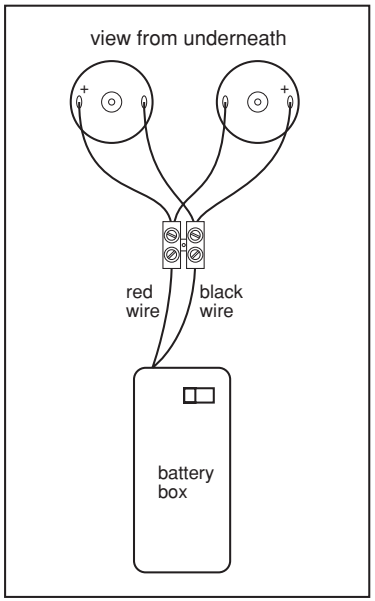
- Connect the wires to the battery box using the terminal block. Stick the terminal block onto the underside of the base plate with a sticky pad.



- Connect the wires to the motors as shown. DO NOT twist the wires around the motor tags. Just pass each wire through its tag and slide over the sleeve to lock it in position.

Note: if you look carefully you will see a '+' on the back of each motor. This can be helpful when connecting the wires.





- Slide open the lid of the battery box and insert two AA size batteries. Stick the battery box to the underside of the base plate with two sticky pads.

- Switch on the plane launcher and see which way the rubber discs spin. The discs should spin in the directions shown. If not, swap the wire connections to a motor to reverse its spinning direction.