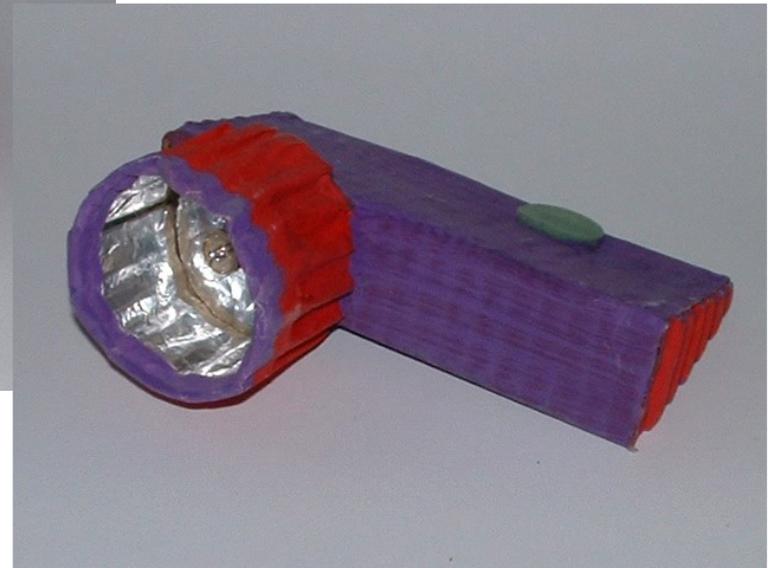
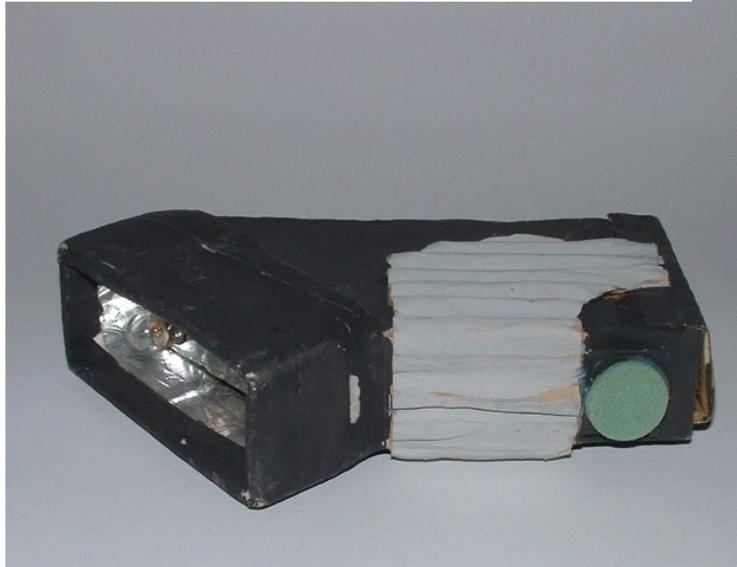
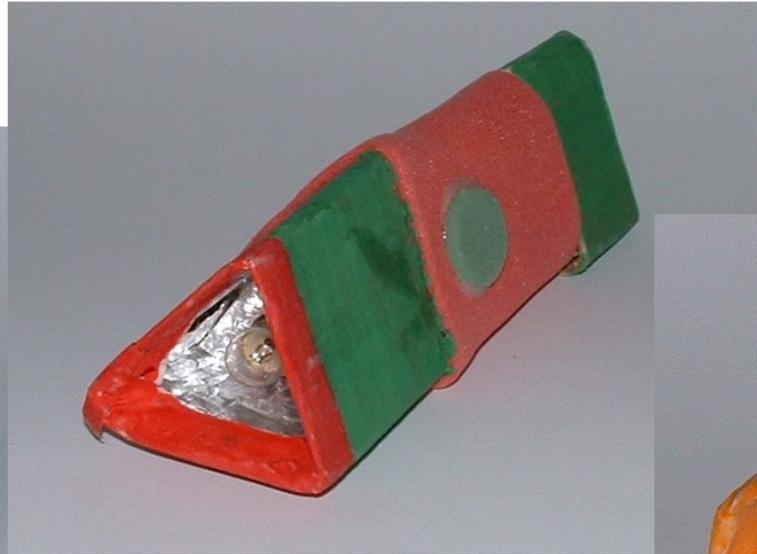


Light it up!



Making Torches!



Lots of different shapes and styles can be created—just adapt the 'making method' on the worksheet!

Making Torches

Basic making method

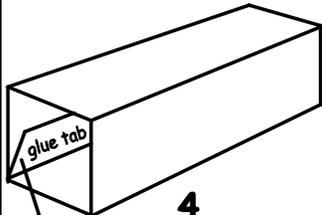
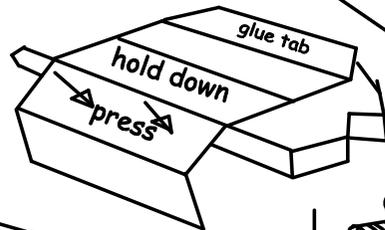
Adapt this method to create torches of any shape & size!

1 Start with a rectangle of corrugated card.

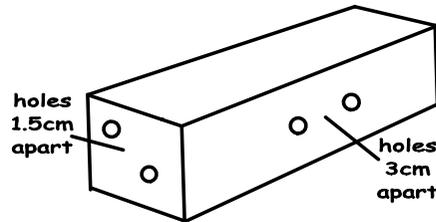
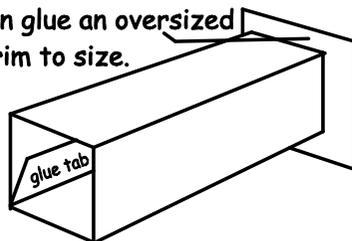


2 Decide how many sides your torch will have, and divide the card up to give these PLUS a glue flap! Mine has four sides.

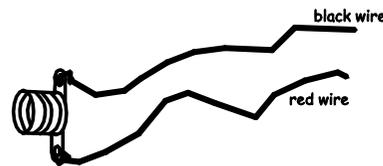
3 Trim if needed, then bend each line over a sharp table edge to form your torch body.



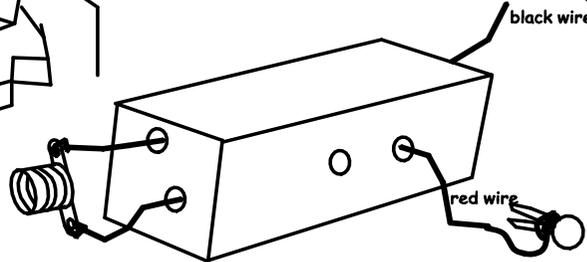
4 Glue the edge up, then glue an oversized end on and trim to size.



5 Make holes in the end and side for wires with a pencil or sharp dowel.

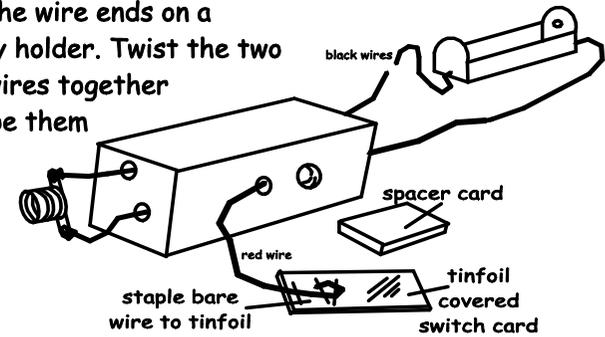


6 Cut wires one and a half times the body length; strip about 3cms of plastic off each end. Carefully attach the wires to a bulb holder.



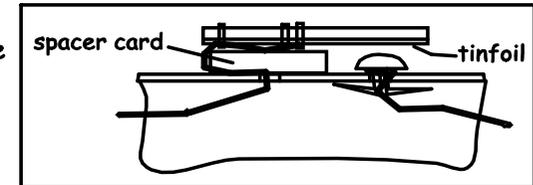
7 Thread the black wire right through the body, and the red wire out through one of the side holes. Attach a paper fastener; insert back through the hole and open out the prongs!

8 Strip the wire ends on a battery holder. Twist the two black wires together and tape them

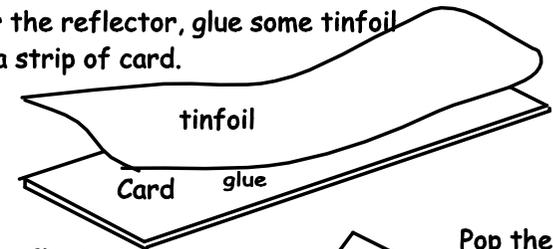


9 Pass the red wire through the hole in the body and staple to a foil covered card.

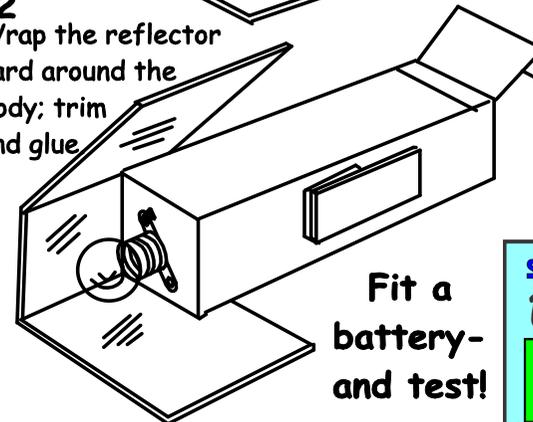
10 Assemble the switch with a spacer card.



11 For the reflector, glue some tinfoil to a strip of card.



12 Wrap the reflector card around the body; trim and glue.



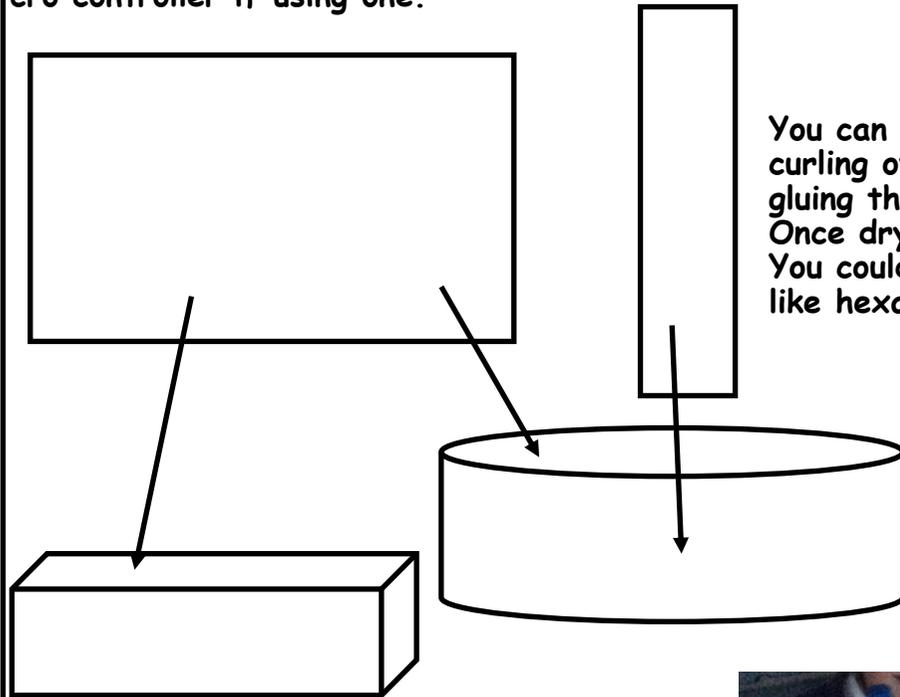
Pop the battery holder in, and fit a flap.

Fit a battery- and test!

Night Light

You can add a micro controller to this model to programme a sequence of lights and if you want to add a light dependant resister as the

Use these pieces to make your base shape. Make sure it is big enough to hide your circuit and micro controller if using one.



You can soften this piece by curling over the table edge then gluing the larger piece on top. Once dry cut round the shape. You could make other shapes like hexagons and triangles too.

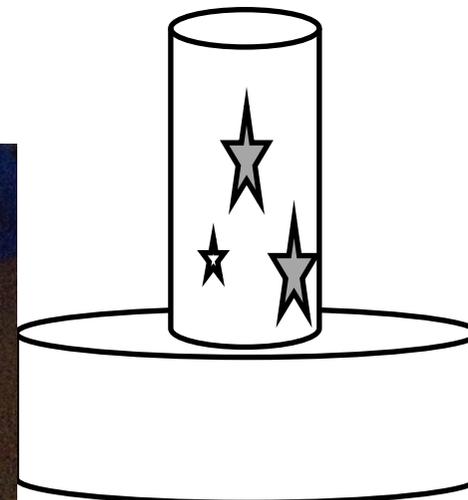
Wire up the circuit by stripping 3cm of the ends of the wires and connecting them to the bulb holder.



Poke holes in the top of the base shape and connect the battery holder and your choice of switch. Look at the switch instructions.

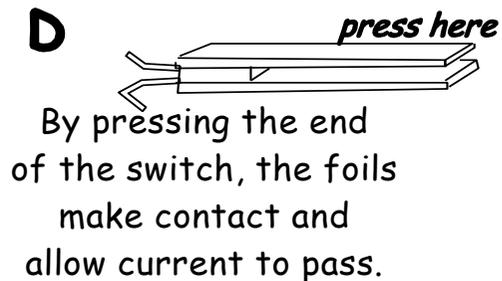
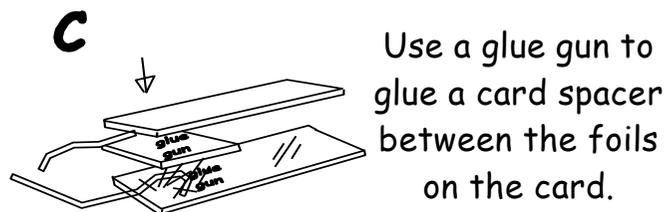
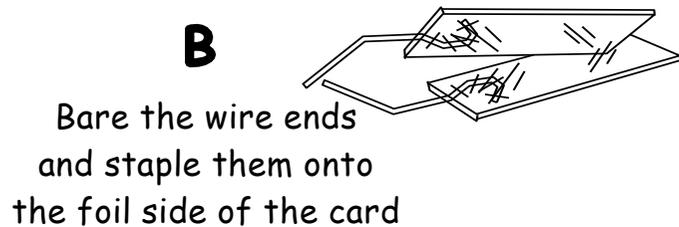
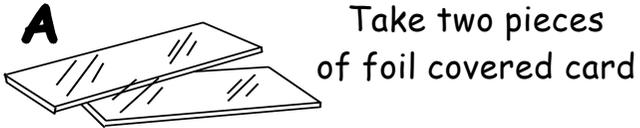
Once your circuit is working make the rest of your design from your choice of materials. Remember the light must shine through. You could use thin card, tissue or cellophane.

Make a cuboid by marking out a 5/6cm margin around the card then folding over the table edge. Then cut a slit in each corner to make a glue tab to join it together.



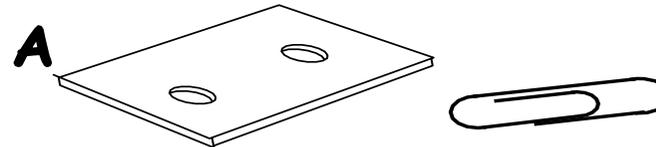
Making Switches 1.

Making a press switch

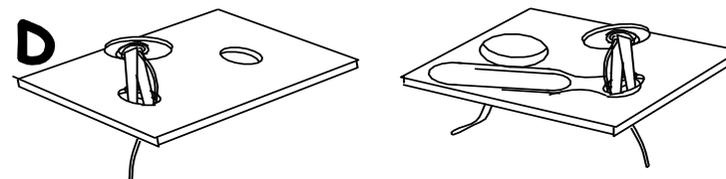
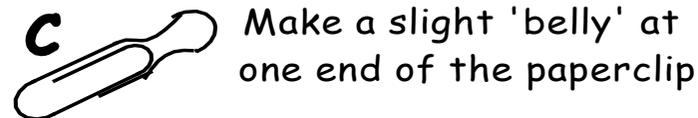
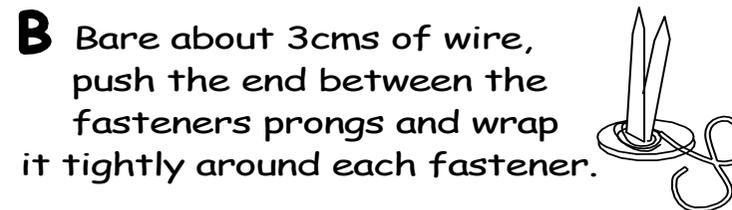


Making Switches 2.

Making a paperclip switch



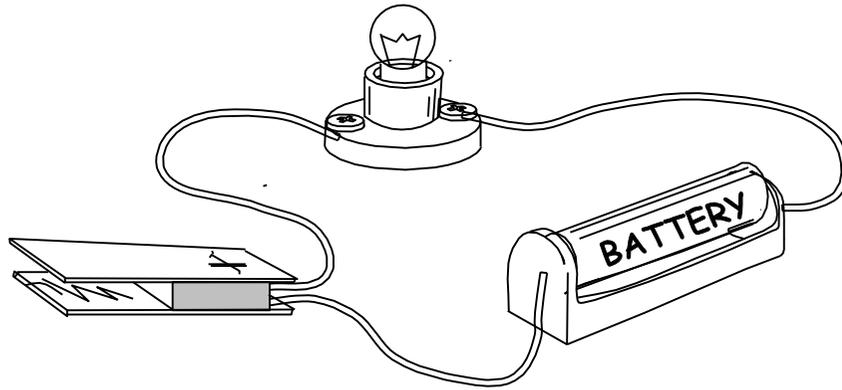
Punch two small holes through a piece of card. Collect a pair of paper fasteners and a paperclip.



Thread the wire through the hole; push the fastener through and open the prongs. Put the paperclip on the other fastener before threading that through as well. Connect wires into your circuit!

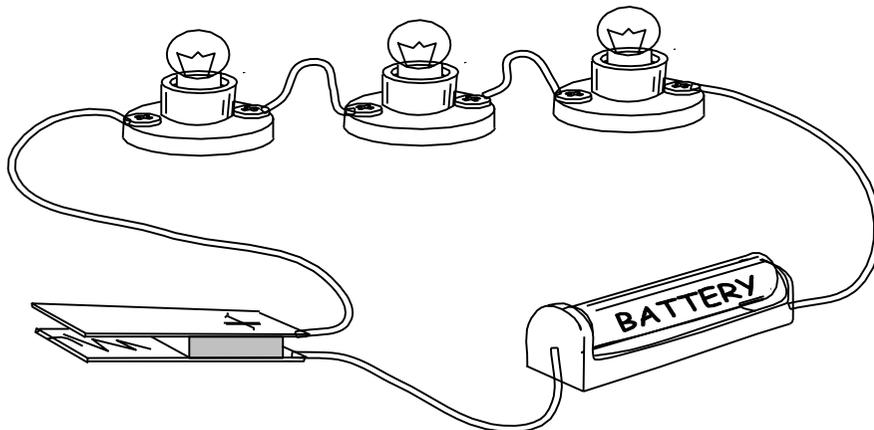
Making Circuits

Making a 'basic' circuit



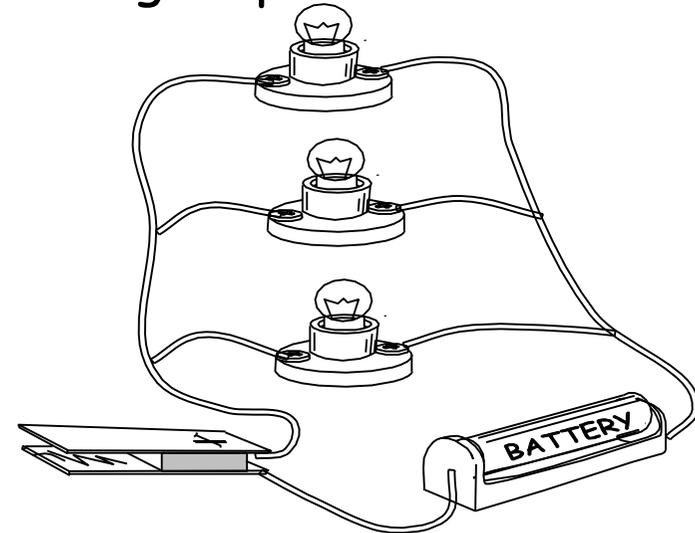
Light will be bright as all the current flows through it

Making a 'series' circuit



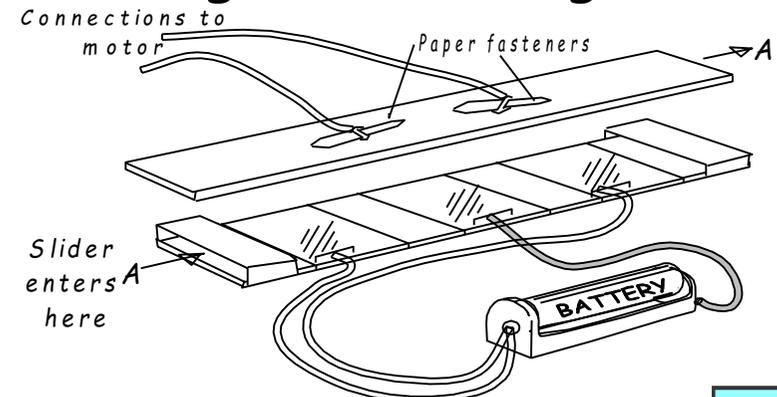
Lights will be dimmer as the current is shared between each bulb in the line

Making a 'parallel' circuit



Light will be bright as each bulb gets the full current flowing through it.

Making a 'Reversing' switch

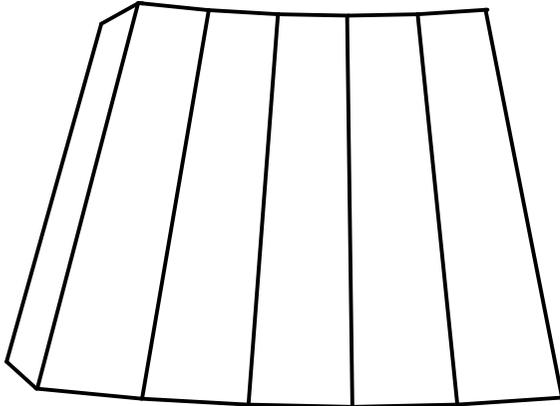


Three pieces of tinfoil are glued across a piece of card. A slit at each end allows the sliding switch to be held in place. Sliding the switch reverses the current fed to the fasteners.

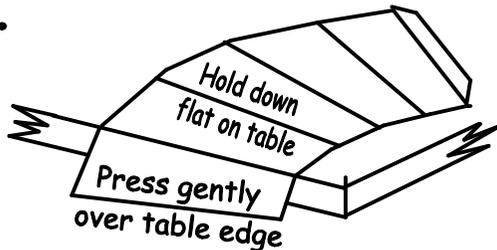
Card 'Net' Lighthouse

1. Carefully cut out a paper template sheet to make your choice of a three, four or five sided lighthouse.

Place the paper template on an A4 sheet of corrugated card, mark round it and cut out the shape.



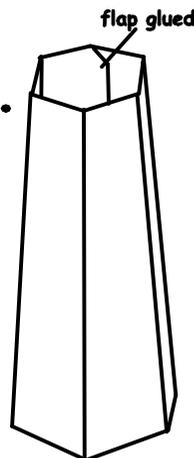
2.



To bend the thick card, line up a line with the edge of a table, hold the card down on the table, and gently press the overhanging piece down.

A glue gun is going to be the best tool to use to join the parts of this project. Use with care!

3.



Fold into a hexagonal tower: fix by gluing the flap.

4.

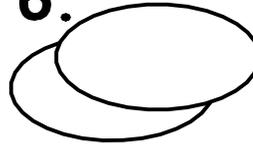
Take a bulb holder and two 30cm wires (red & black) and strip 3cms of plastic off each of the wire ends.

5.



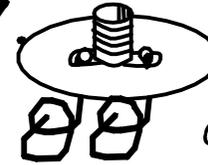
Thread the bared wires through the holes in the bulb holder, and carefully twist it around itself until firmly attached.

6.



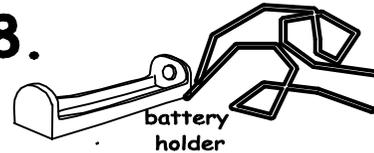
Cut out two circles about 7cms diameter from card - I draw round a suitable plastic lid, or use a pair of compasses.

7.



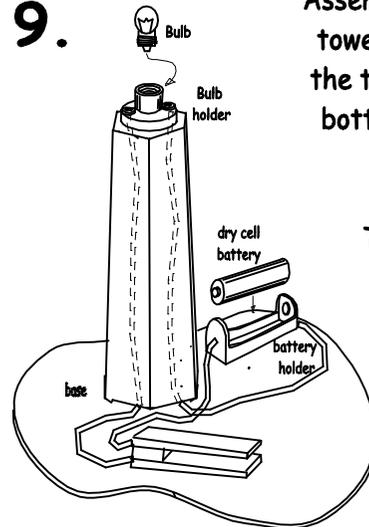
Make two holes 2cm apart in one of your card circles and thread the wires through. Glue gun the holder to the card.

8.



On a battery holder, snip off about 1cm of each wire, then strip off 3cm of plastic covering. **Be careful NOT to pull the wires out of the body of the holder.**

9.



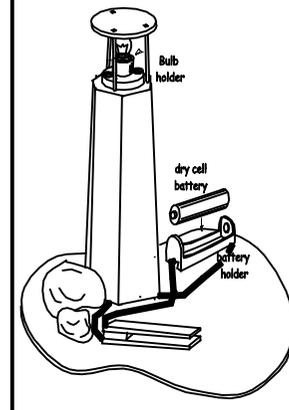
Assembly - pass the wires down the tower, and glue the card circle to the top. Bring the wires out at the bottom and glue the tower to the baseboard.

Twist the black wire from the tower with the black wire from the battery holder.

Now make the switch on the two red wires as shown below.

10 Fit the top circle in place, supported by pieces of card.

Glue some 'rocks' on, paint the sea and beach.



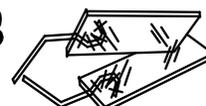
Press the switch to light the lamp!

A



Take two pieces of foil covered card

B



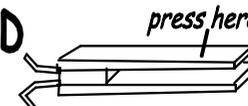
Staple with 3 staples each red wires to a switch card.

C



Glue a spacer card between the foil sides of the card.

D

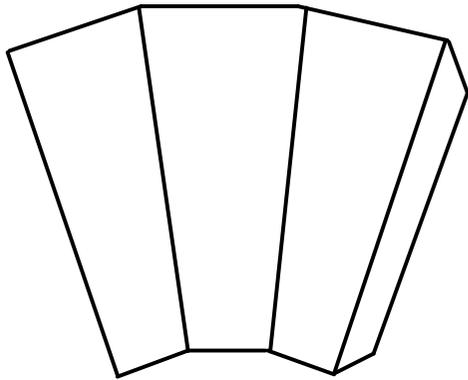


Glue in place. Press to switch on!

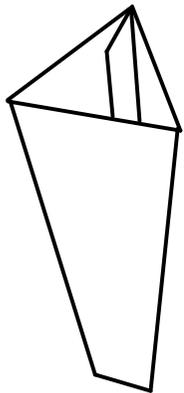
Olympic Torch

1.

Use the template sheets from the Lighthouse topic - carefully cut out the sides template and draw round on card.

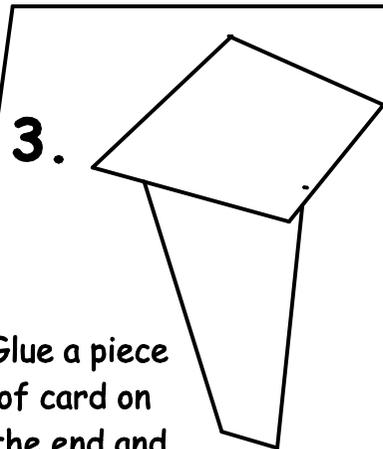


2.

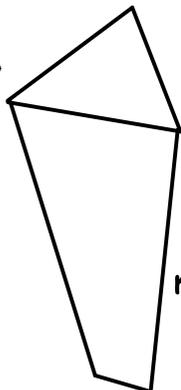


Fold into a body: fix by gluing the flap.

3.

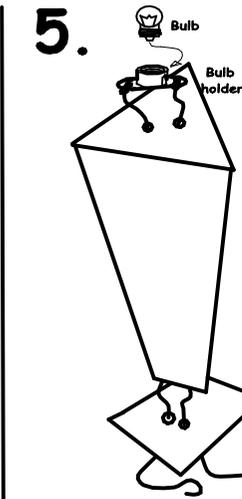


4.



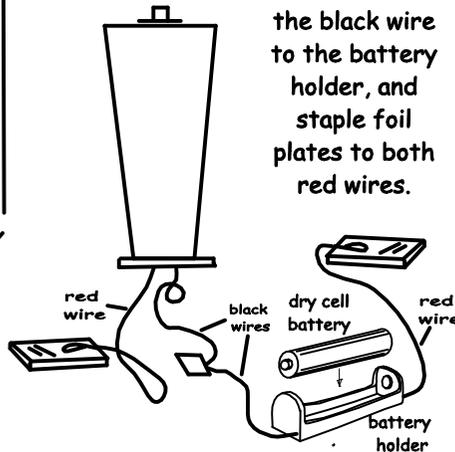
Glue a piece of card on the end and trim. The ends may be any shape you like.

5.

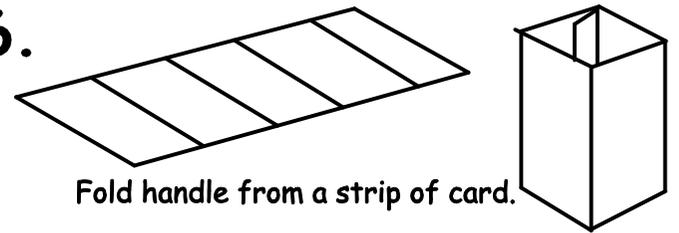


Wire up the bulb holder, thread the wires through the body and through a base card. Glue the holder in place.

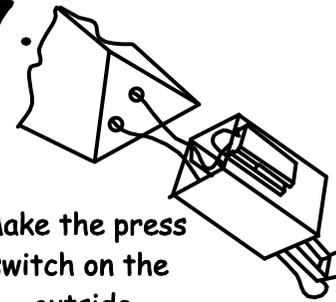
Pull the wires through the base, then glue the base on. Connect the black wire to the battery holder, and staple foil plates to both red wires.



6.

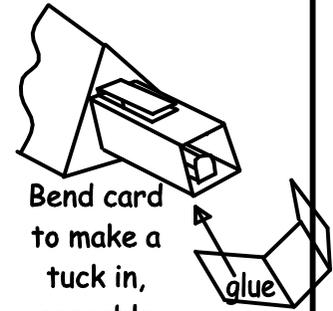


7.



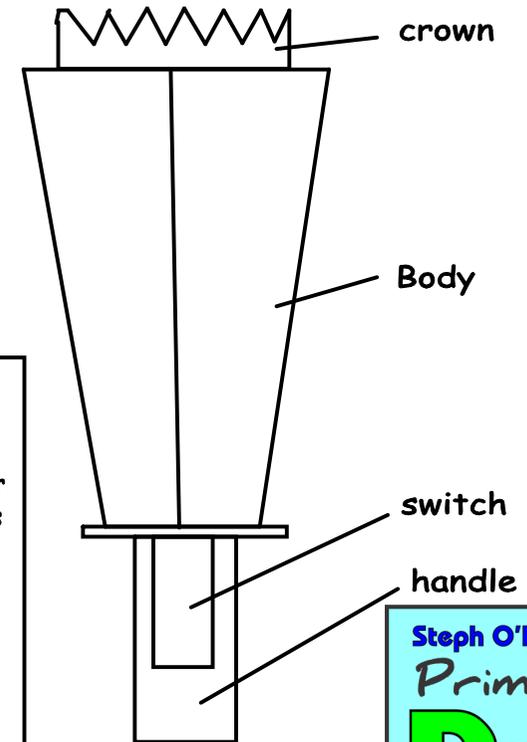
Make the press switch on the outside of the handle.

8.



Bend card to make a tuck in, openable end.

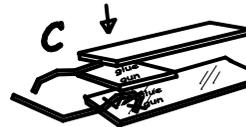
9.



Making a press switch



Take two pieces of foil covered card



Use a glue gun to glue a card spacer between the foils on the card.



Bare the wire ends and staple them onto the foil side of the card



By pressing the end of the switch, the foils make contact and allow current to pass.

@stephodonnelldt

Card 'Net' - three sided Lighthouse

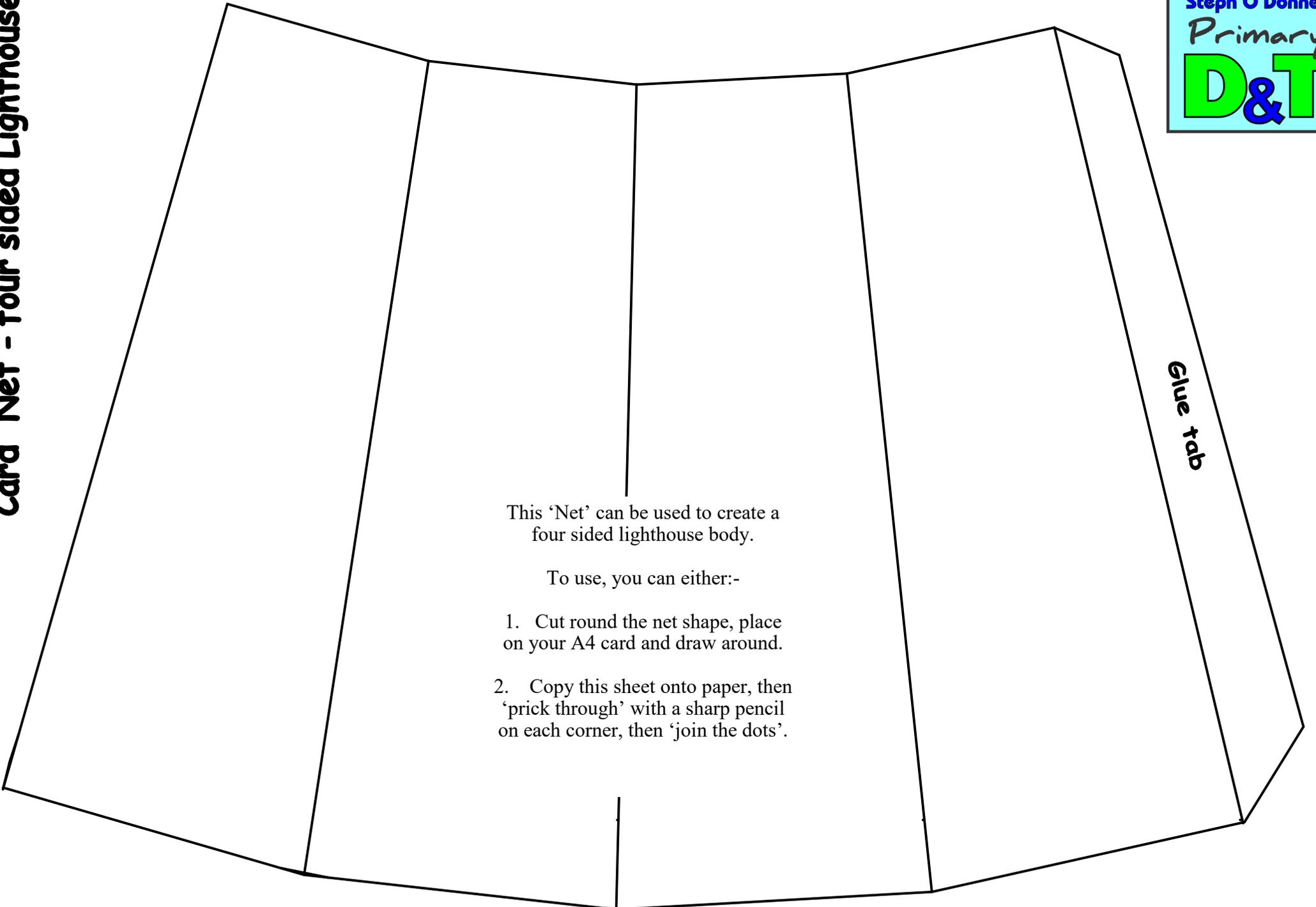
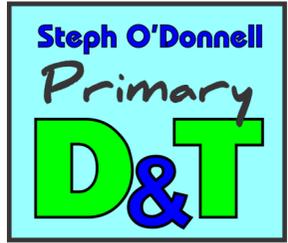
Glue tab

This 'Net' can be used to create a three sided lighthouse body.

To use, you can either:-

1. Cut round the net shape, place on your A4 card and draw around.
2. Copy this sheet onto paper, then 'prick through' with a sharp pencil on each corner, then 'join the dots'.

Card 'Net' - four sided Lighthouse

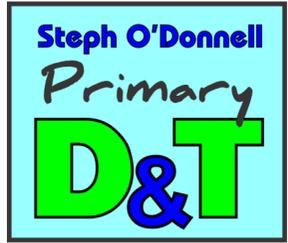


This 'Net' can be used to create a four sided lighthouse body.

To use, you can either:-

1. Cut round the net shape, place on your A4 card and draw around.
2. Copy this sheet onto paper, then 'prick through' with a sharp pencil on each corner, then 'join the dots'.

Card 'Net' - five sided Lighthouse



Glue tab

This 'Net' can be used to create a five sided lighthouse body.

To use, you can either:-

1. Cut round the net shape, place on your A4 card and draw around.
2. Copy this sheet onto paper, then 'prick through' with a sharp pencil on each corner, then 'join the dots'.