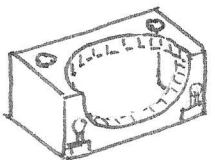


4 FOLD THE FACES TO FORM A BOX SHAPE AND GLUE THE TWO TABS MARKED 'a'



NB. USE PRITT STICK TO GLUE THE TABS OF THE BOX
MAKE SURE EDGES ARE LINED UP EXACTLY

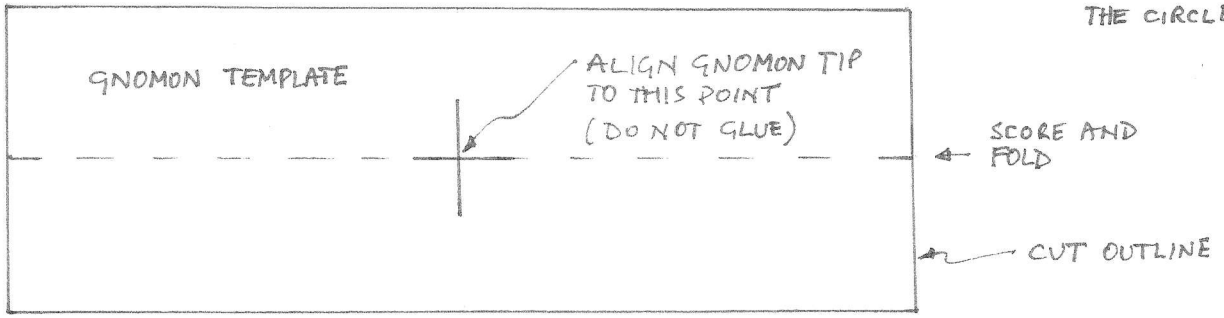
← THE FACE FORMS THE FRONT OF THE DIAL

2 CUT ROUND THE WHOLE OUTLINE

5 FROM SHEET A GLUE THE BACK FIRST WITH TAB 'b' AND TWO TABS 'c' THEN THE BOTTOM TO COMPLETE THE BOX WITH 3 TABS 'd'

3 BEND DOWN ALL THE SCORED LINES FIRMLY WITH A FLAT FINGER NAIL INCLUDING THE TABS ROUND THE CIRCLE

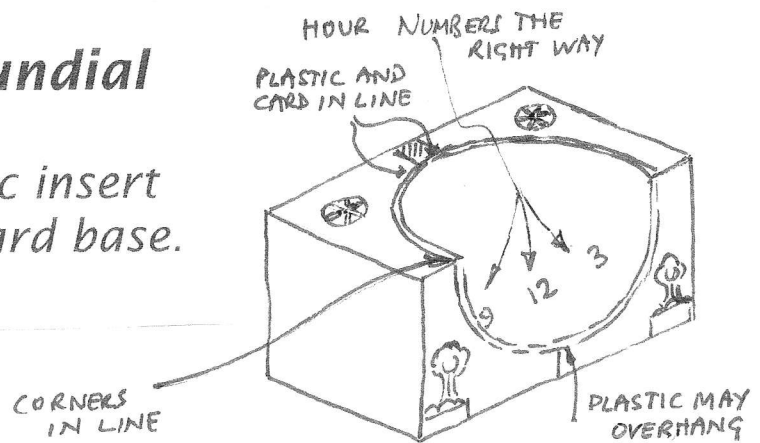
6 CUT OUT AND FOLD THIS TEMPLATE WHICH WILL HELP YOU FIX THE GNOMON IN THE RIGHT PLACE



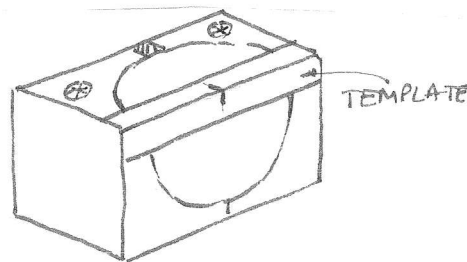
7 Go to SHEET C

Assembling your sundial

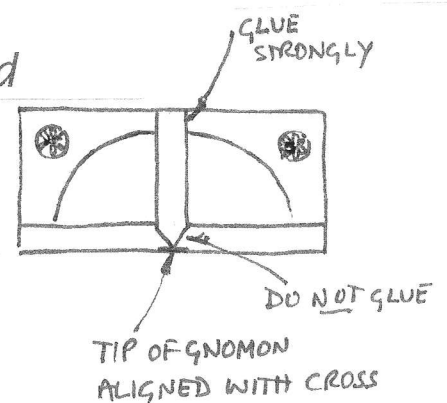
1. Check that the plastic insert fits neatly into the card base.



2. Get help to put a thin strip of strong glue on the **back** of the plastic and close to its curved edges. Put the plastic in place on the card base, Press the card tabs against the plastic from underneath, making sure that the edges and corners of both parts stay lined up. It is important that the top of the box and the top of the plastic insert are level with each other. Allow a few minutes for the glue to set.
3. Place the gnomon template across the front of the dial. **Do not glue**



4. Lay the wooden gnomon on top of the dial. Use strong glue to attach the root of the gnomon to the card over the shaded patch, making sure that the tip of the gnomon stays lined up with the cross on the template. Let the glue dry for several minutes before taking the template away.



5. Your modern hemicyclium sundial is now complete. Congratulations!
Find out how to align and use it on sheet D

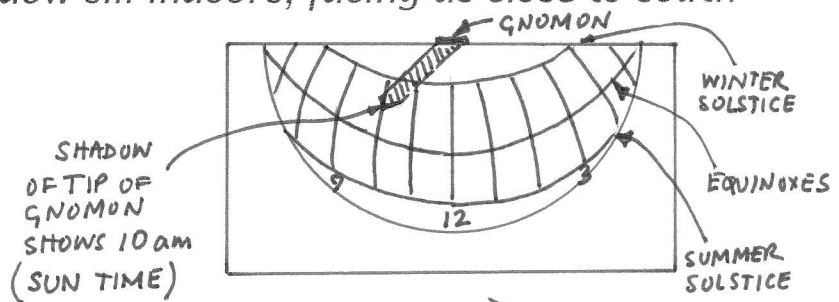
Using your sundial

D

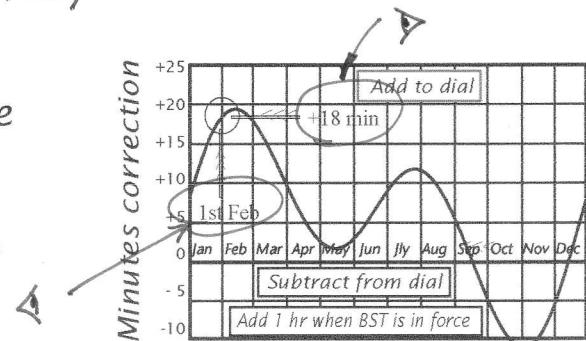
A. Rough adjustment for time:

Check first that the tip of the gnomon is in line with the two corners of the sundial box.

1. Put your sundial on a sunny window sill indoors, facing as close to south as possible.
2. Look to see where the shadow of the tip of the gnomon is.
You will see something like this:



3. Now look at the graph on the back of the sundial which helps you change time by the sun to time by the clock. Find today's date and see how many minutes have to be added to or taken away from the sundial reading.



B. Fine adjustment for time

4. The result from 3 will probably not agree with clock time, so turn the sundial slightly so that when you have read the sundial and used the graph, you end up with the correct clock time.
5. Your sundial is now properly aligned to south and should always point in this direction.

CORRECTION ON 1ST FEB IS +18 MIN

$$\text{SO CLOCK TIME IS } 10:00 + 0:18 = 10:18 \text{ AM}$$

C. Adjustment for date

1. This is best done on one of the seasonal dates

They are (for 2015):
 spring equinox 20 March
 summer solstice 21 June
 autumn equinox 23 September
 winter solstice 22 December

On these days the shadow of the tip of the gnomon should move along the relevant date curve on the sundial.

Use a small piece of card or a wedge under the front or back of the sundial to tilt it so that the shadow falls exactly on the date curve.

D. More help

You can find more detailed explanations of how sundials work on the British Sundial Society website www.sundialsoc.org.uk

E. More models to make

Go to www.sundialsoc.org.uk/sundial-maker/educational-universal-multi-dial