# Times Past

How did people long ago know what time it was? They observed the sun very carefully, and could tell by its position in the sky what time of the day it was by using the length of the shadows. The very first "clock" used the shadows created by the sun - we call it a sundial. You can make your own sundial.

## What you will need:

- large round dinner plate
- large sheet of heavy cardboard
- small sheet of lighter cardboard
- scissors
- ruler
- permanent colour felt tipped pen
- glue
- sticky tape
- compass
- clock or watch

## What you need to do:

1. Using the plate as a stencil place it on the cardboard and draw around the plate.
2. Cut out the circle of cardboard. This is your sundial base.
3. Locate the centre of the sundial base. Draw a straight line from the centre to the edge (measure that distance)
4. Cut out two identical right-angled triangles, these will form the sundial "style" or pointer. The base of the triangles should be half the diameter of your plate stencil (the distance you have just measured) and the height should be 7.5 cm.
5. Draw a line 2.5 cm from the base on each triangle and fold along this line to make a "foot" for your triangle to sit on. Make sure the foot of each triangle is folded in opposite directions.
6. Glue your two triangles together so that each ones foot is turned outward.
7. Tape the sundial style you have formed to the sundial base along the line you drew from the centre.
8. The height of the triangle should be to the outer edge of the circle.

9. Place the completed sundial on to a flat table or other surface in the open away from buildings or trees that may shade it.

10. Using a compass locate due south and position the sundial so that the line you drew on it with the style taped over it is pointing to due south. Mark this position with 12.

11. Fix the sundial in place on your table or other surface so it can't move.

12. Using your clock, each hour mark on the outer rim of the sundial the edge of the shadow created by the style and label it with the time. Eg 1 pm 9 am etc. Measure the angle between noon and each hour. (The angle should be the same on either side of midday i.e. 1 pm and 11 am should be the same and 6 am and 6 pm should be about 90 degrees).

13. Once you have a number of different hours marked you should be able to tell what time it is without using your clock or watch.

If you live south of the Tropic of Capricorn the Sun will always be in the north however if you live north of the tropic of Capricorn in summer time the sun will actually be in the southern sky. When the sun is at its highest point in the sky it will be 12 midday and the shadow cast will be the smallest and point due south because the sun will be due north. Shadows are longer in the morning and afternoon. In the summer the shadows are shorter than they are in winter, because the Sun is higher in the sky in the summer than in the winter. You may notice that over a period of weeks the shadow lines don't coincide exactly with "clock" time any more. Sometimes it will appear to "run fast" and at other times "run slow" and may in fact vary by more than 15 minutes either way.