Making a sundial

Outstanding Science Year 5 - Earth and space - OS5D008

National Curriculum Statutory Requirements

5D4 - use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky; **UKS2W2** - taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate;

Learning Objective

I can make a sundial and explain how it works.

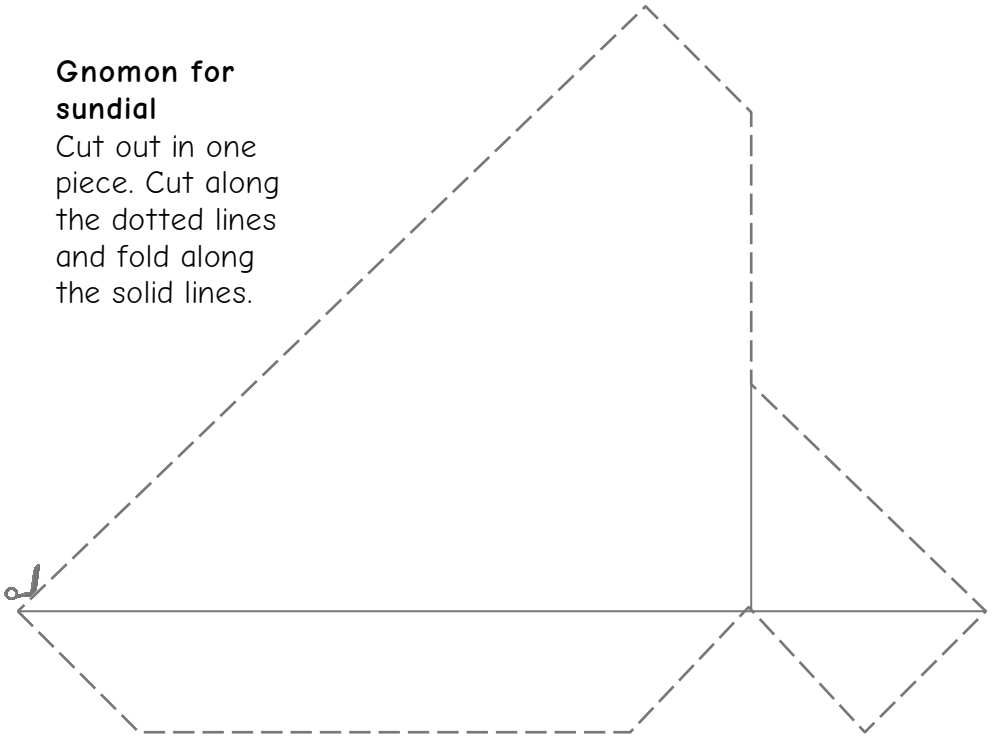
Me: Teacher:

Sundials

A sundial is a device which uses a shadow cast by sunlight to tell the time. The Earth's rotation causes the Sun to appear to move across the sky. This causes the shadows that it makes to change shape and size. By measuring their shape and size, it is possible to tell the time.

Gnomon for sundial

Cut out in one piece. Cut along the dotted lines and fold along the solid lines.



Making a sundial

This activity is best done on a sunny, rain-free and wind-free day.

1. Carefully cut out the **gnomon** (shadow maker) and attach it to the sundial. Make sure that it stands vertically.
2. At exactly midday, take your sundial outside. Place it on the ground and rotate it so that the shadow cast by the gnomon falls on the midday marker. Make sure that you do not move the sundial from this position or it will not work properly.
3. Calibrate your sundial. At 1pm, use a ruler and pencil to mark the line of the shadow cast by the gnomon at that time. Label this line '2pm'.
4. Repeat at 2pm and 3pm.
5. The next day, mark the shadow lines at 9am, 10am and 11am.
6. Well done! You have successfully completed your sundial!

Discussion

What are the disadvantages of a sundial as a way of telling the time?

Can you predict where the 4pm shadow line would be on your sundial?

Would your sundial work in different parts of the world? Why?

Outstanding Science