Follow the Sun

What you need:
A sunny day
A plastic drink bottle
A funnel
Some sand
A tape measure or ruler
A piece of chalk
A compass

What to do:

Use the funnel to fill the bottle with sand. This will stop the bottle falling over during your experiment.

Early in the morning, put the bottle in the playground or on a paved area.

Make sure you choose a wide open space so that the Sun will shine on the bottle all day.

Use your compass to mark the directions north, south, east and west around your bottle.

Leave a gap of about a metre before you chalk your N, S, E and W.

Use the chalk to mark a line along the centre of the bottle's shadow and draw another line across the top of your first line (like a capital letter T) where the shadow ends.

Make a note of the length of the line and the time on the ground by your "T" mark.

Now repeat your observations and draw more "T" marks at regular intervals (maybe every hour).

What did you learn?

If you do this experiment for a whole day (yes, science sometimes takes a long time!) can you answer these questions?

In the morning, the shadow of the bottle pointed - north/south/east/west.

In the morning, the shadow of the bottle was shorter than/the same as/longer than the shadow at midday.

In the morning, the Sun was in the north/south/east/west.
The bottle full of sand makes a shadow because it is transparent/translucent/opaque.