

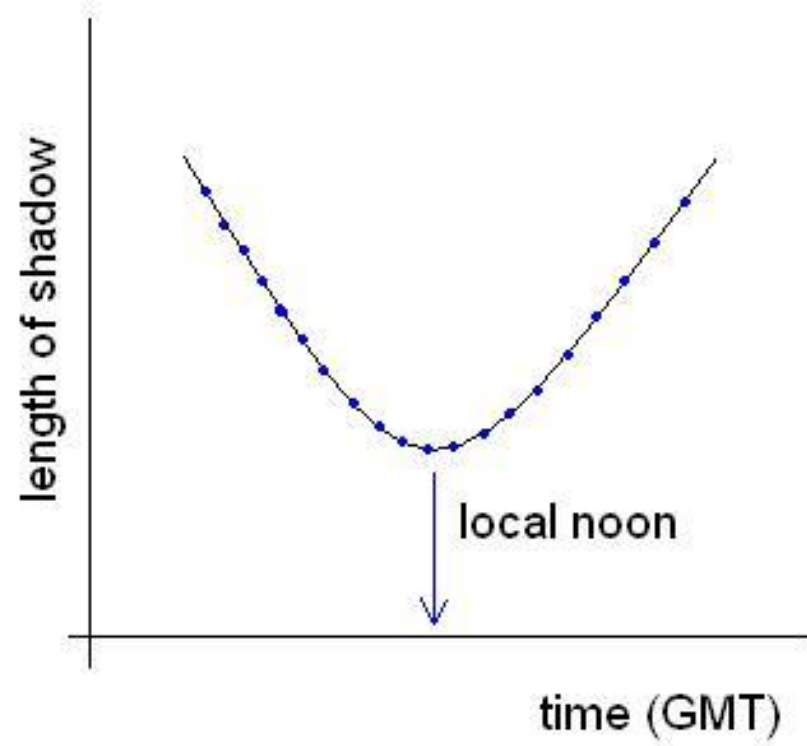
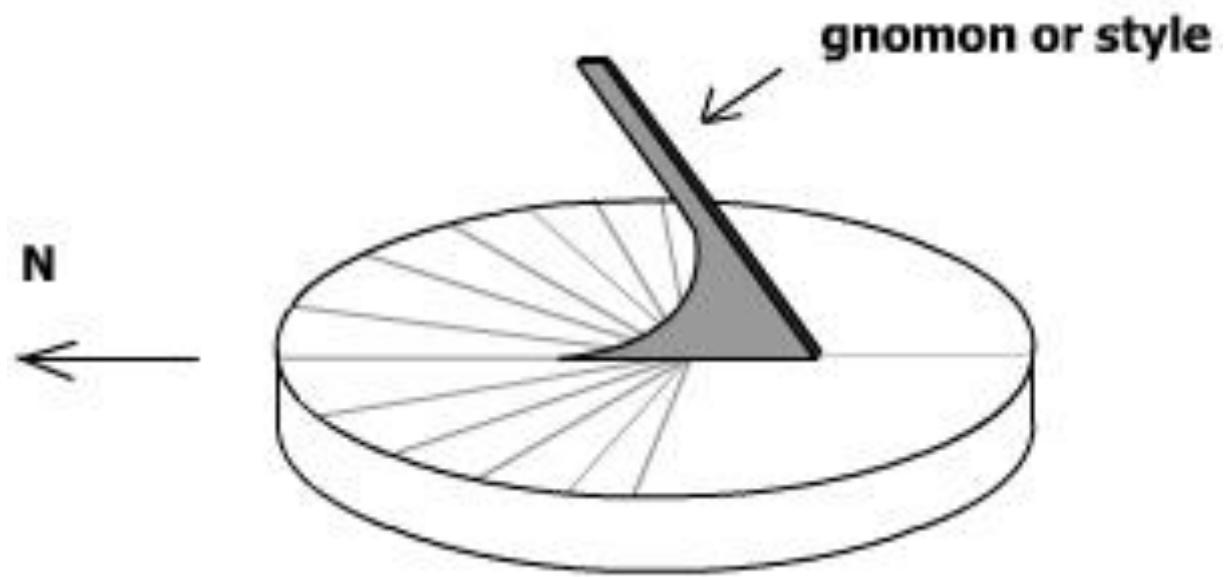
Time

Week 14

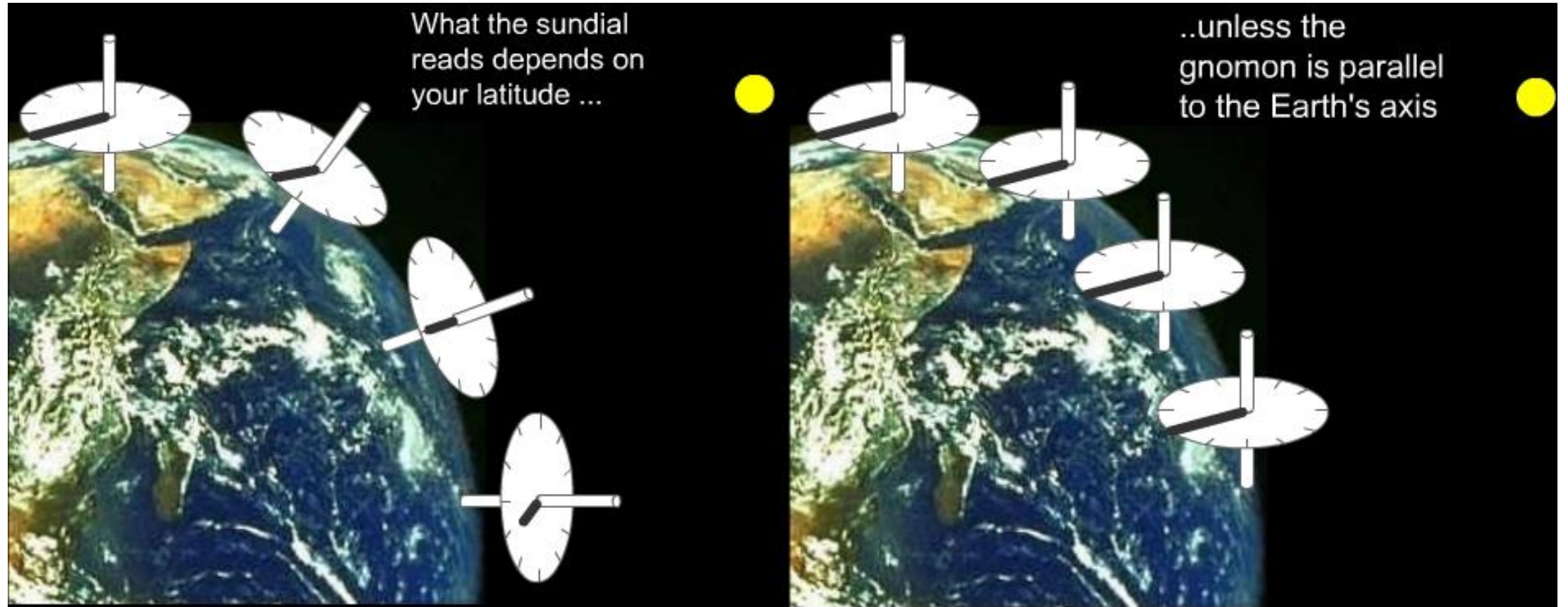
What's the difference between a solar day and a sidereal day?

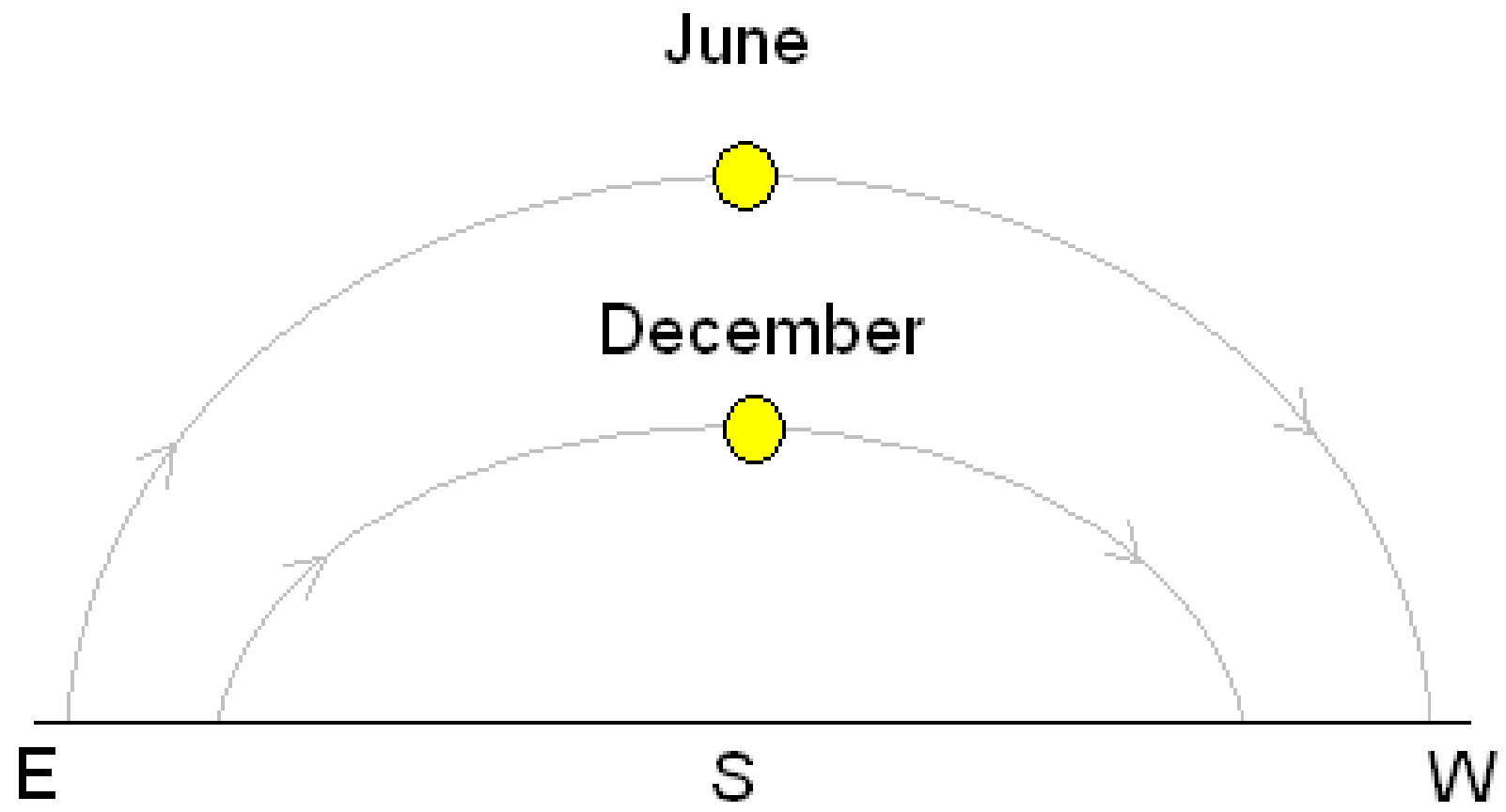
Using a shadow stick

- http://www.astronomygcse.co.uk/AstroGCSE/New%20Site/Topic%201/earth%20moon%20sun/shadow_sticks_and_sundials.htm



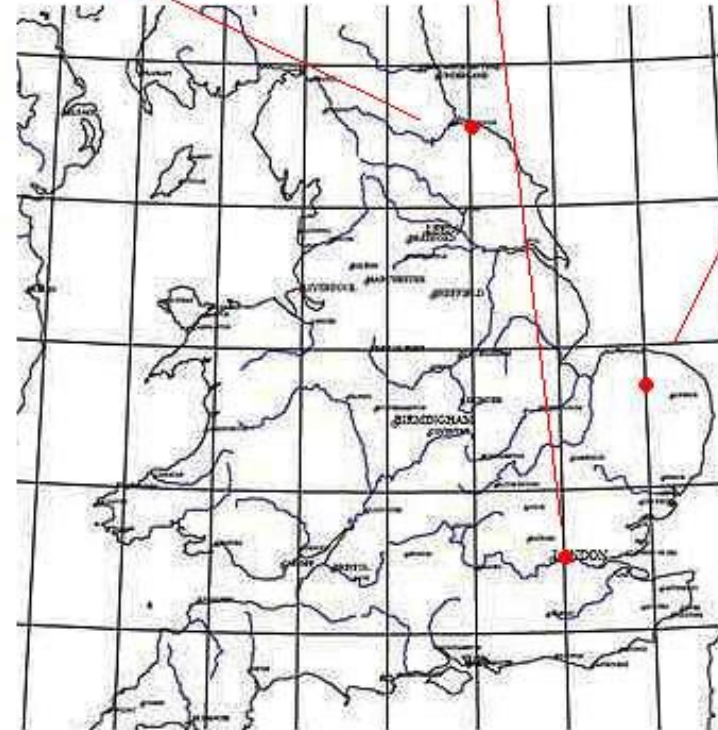
Positioning the sundial







Longitude correction:
For every degree of longitude **East** of Greenwich you are your local noon will be 4 minutes **earlier**
For every degree of longitude **West** of Greenwich you are your local noon will be 4 minutes **later**



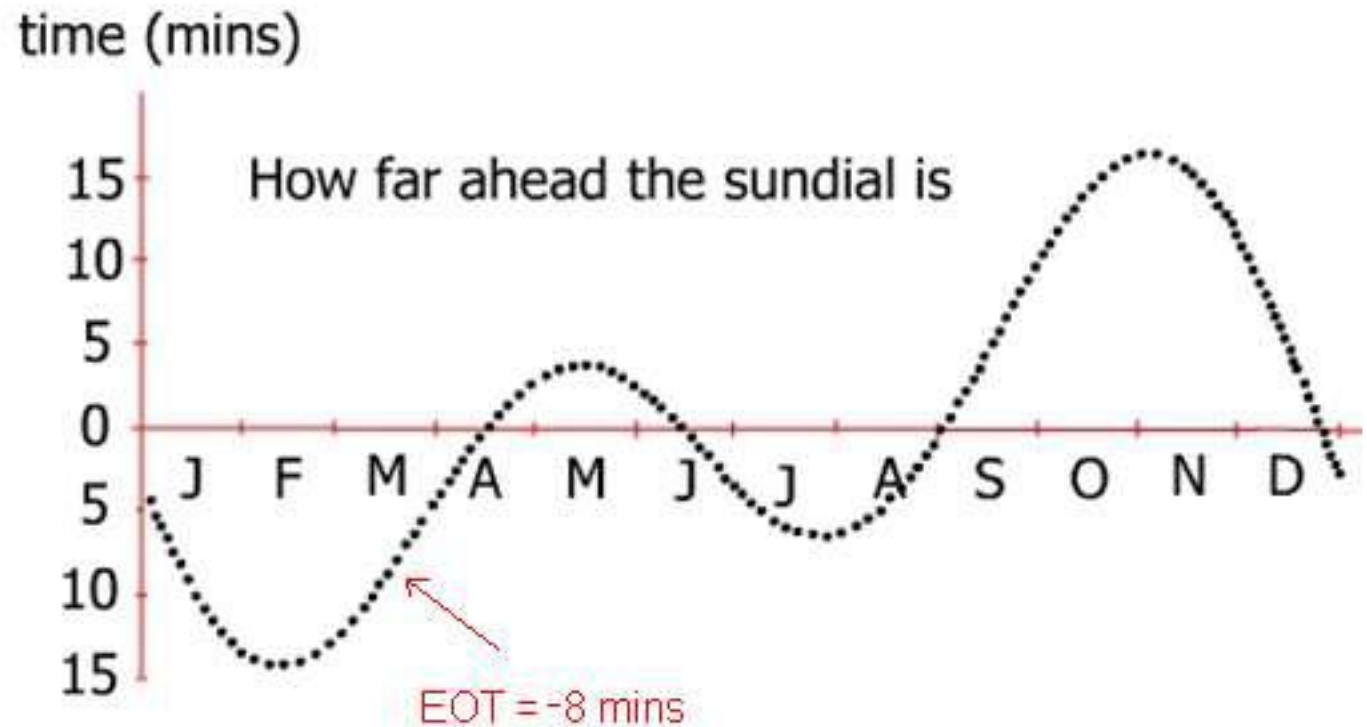
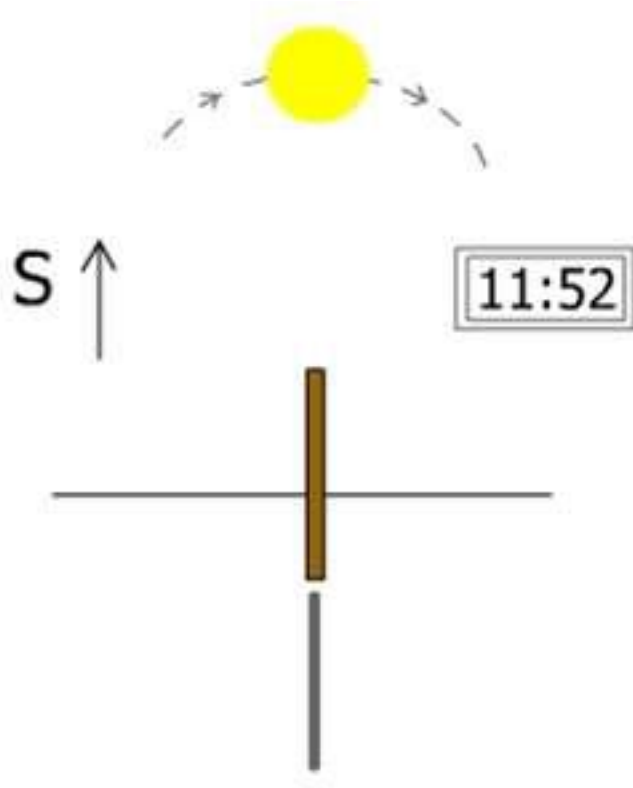
GMT

- All our clocks in the UK tell us the time in GMT – Greenwich Mean Time.
- The ‘mean’ part means the mean average
- Sundials and sticks tell us the AST (apparent Solar Time) because the sun’s movement across the sky is not consistent or ‘uniform’

So we use the equation of time (EOT)

$$EOT = AST - GMT$$

So the EOT compensates for daylight being different lengths depending on the date



- Philomena Cunk's Moments of Wonder

The solar wind

- The **solar wind** is a stream of charged particles released from the upper atmosphere of the sun
- It's mostly electrons and protons travelling at high speed.

The aurora

- The solar wind particles are pulled and accelerated by the Earth's magnetic field.
- They hit the atoms in the Earth's atmosphere and give energy to the atoms.
- When the atoms then give out that energy we see it as light. This is the aurora.
- It happens at both N and S poles.
- It takes mostly in polar regions.

