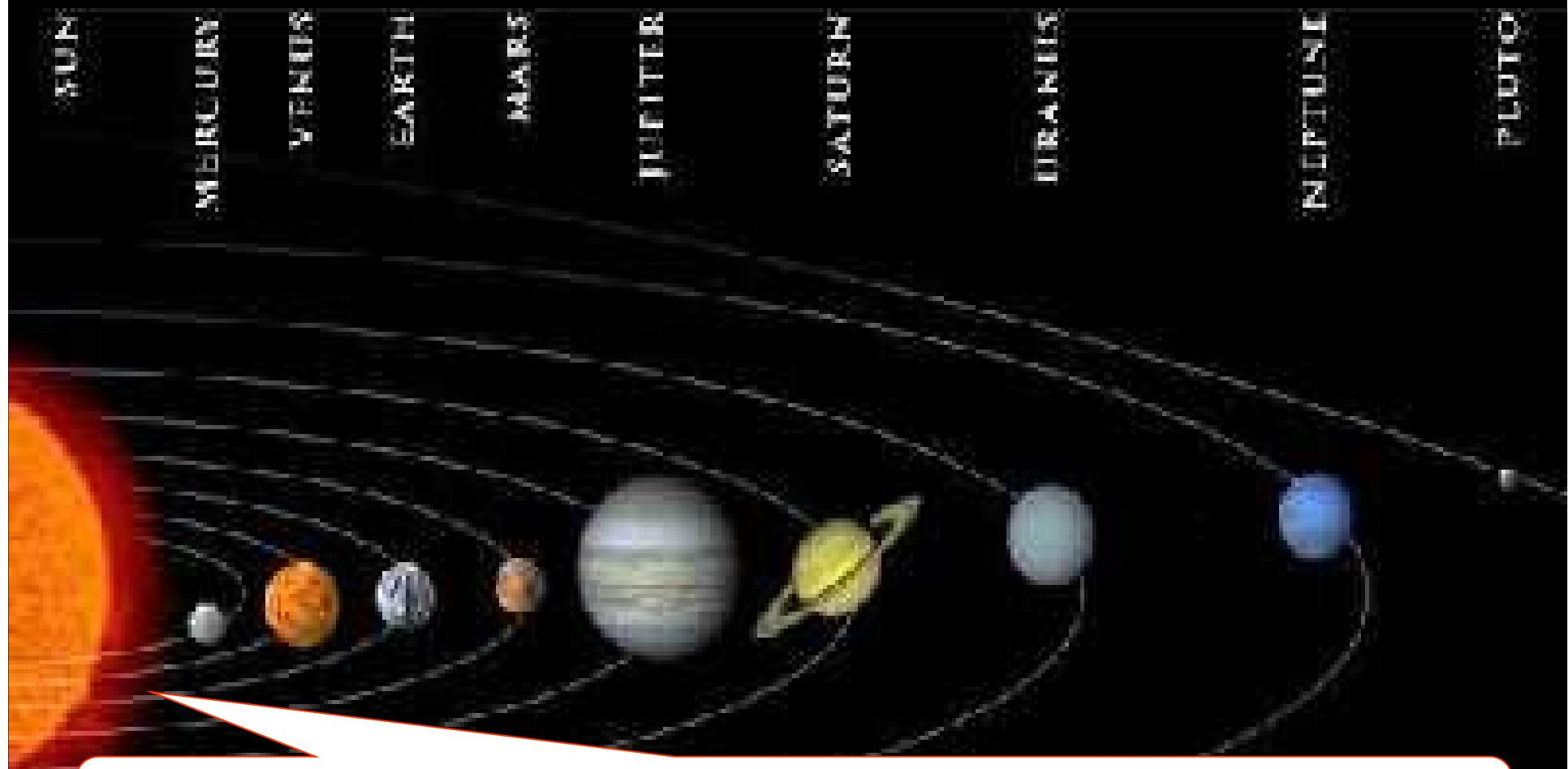




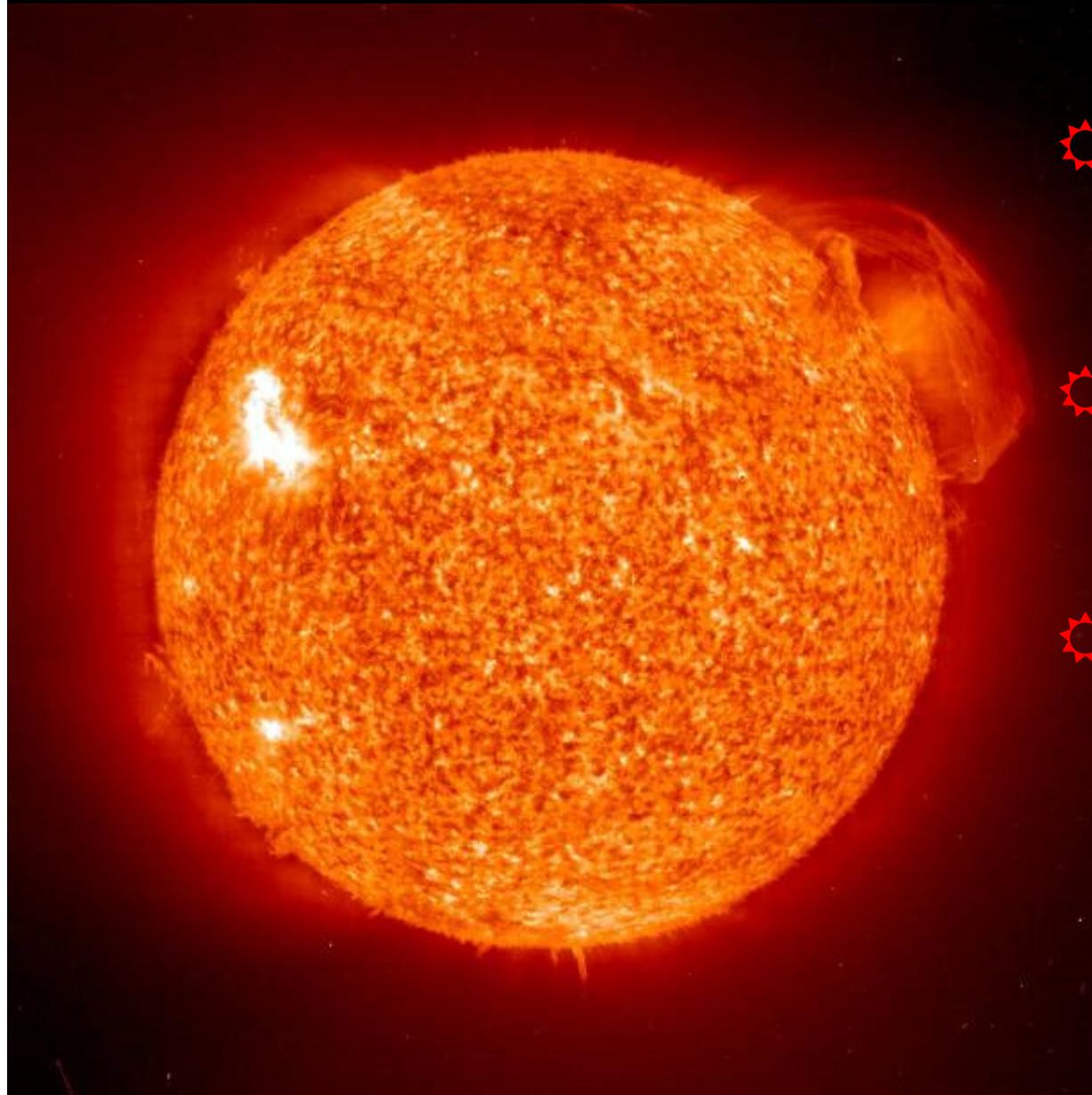
The Earth and Beyond

The Sun is the star at the centre of our solar system.



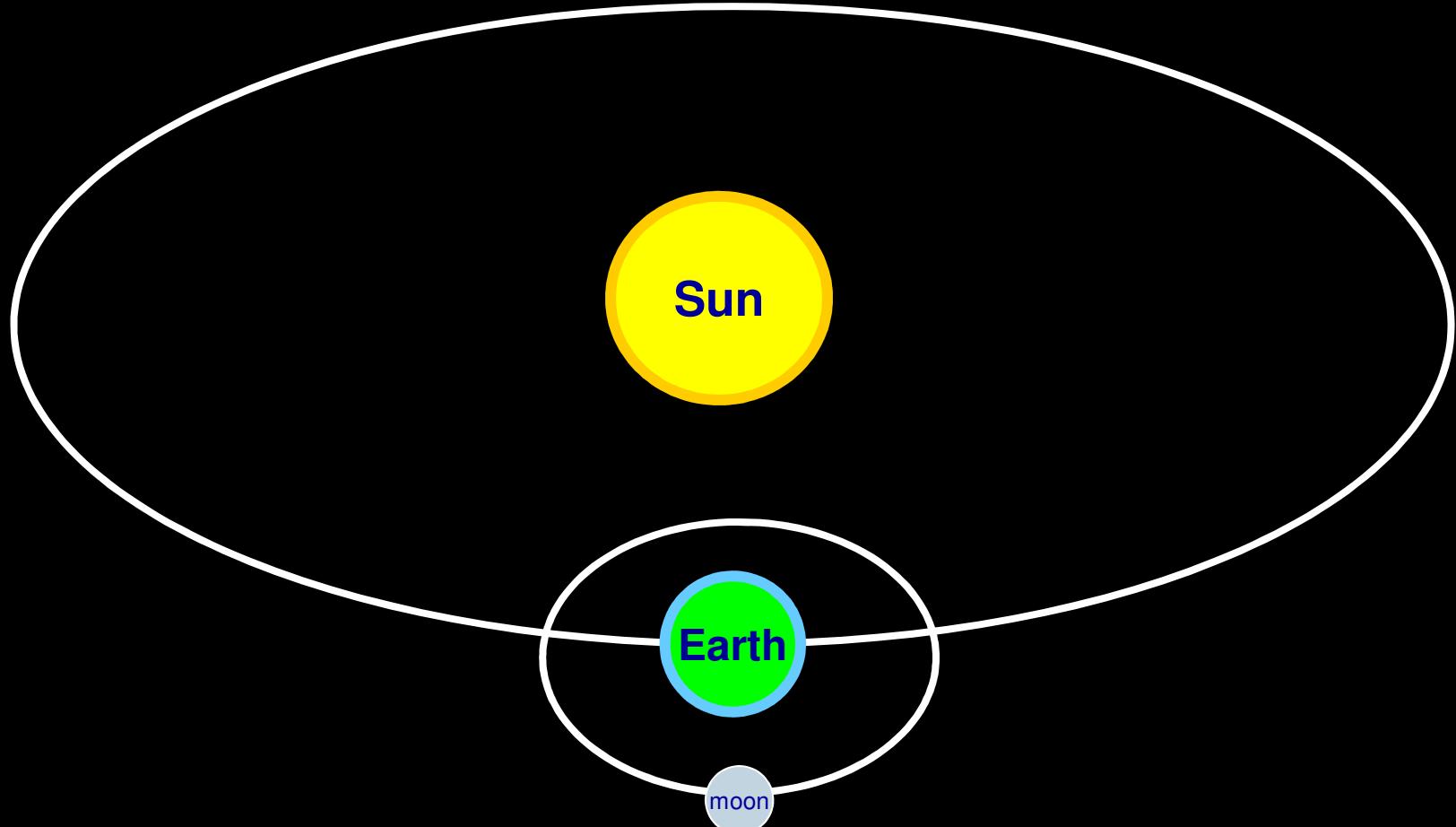
Here is a useful mnemonic to help remember their order:
My **V**ery **E**asy **M**ethod **J**ust **S**hows **U**s the **N**ames of **P**lanets.

But what do we know about the Sun?



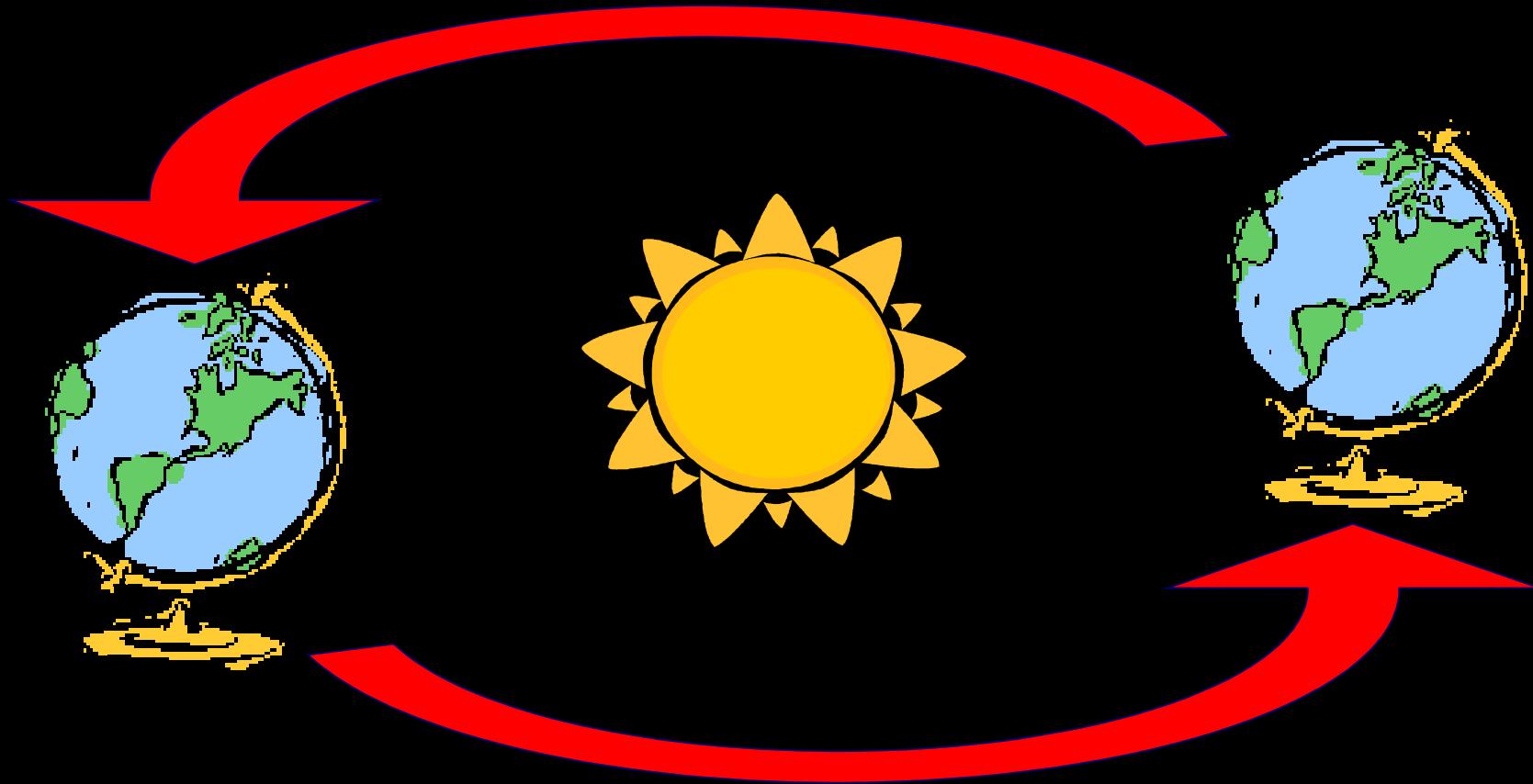
- ★ The Sun is 150 million kilometres away from us.
- ★ It has a massive diameter of 1,393,000 km.
- ★ Our Sun was probably formed from a large cloud of gas about 5,000 million years ago.

The moon orbits the Earth...



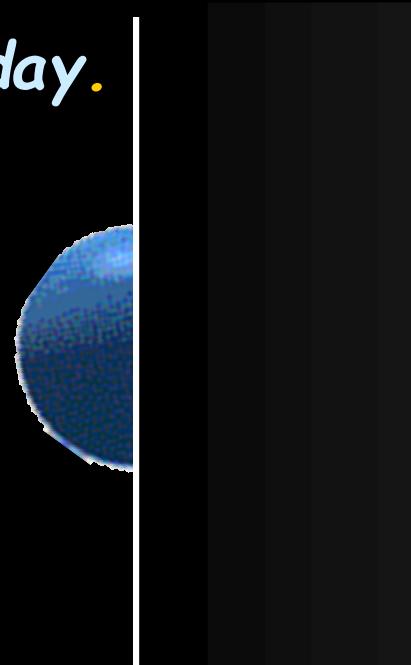
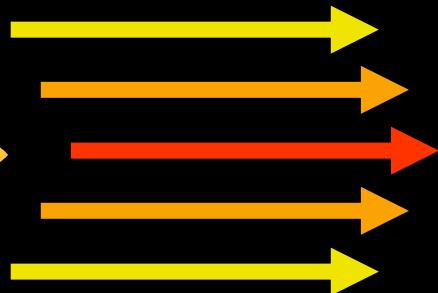
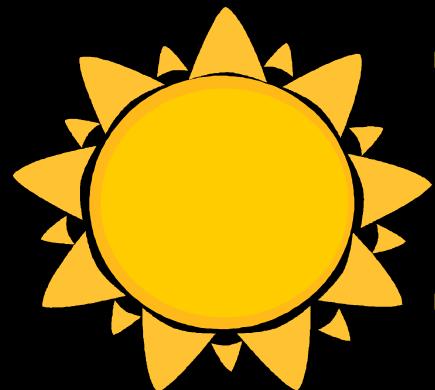
...as the Earth orbits the Sun.

As the Earth orbits around the Sun, it also spins on its own axis; which is tipped, like a globe's.



**At any time, half of the Earth faces the sun
and therefore receives light.**

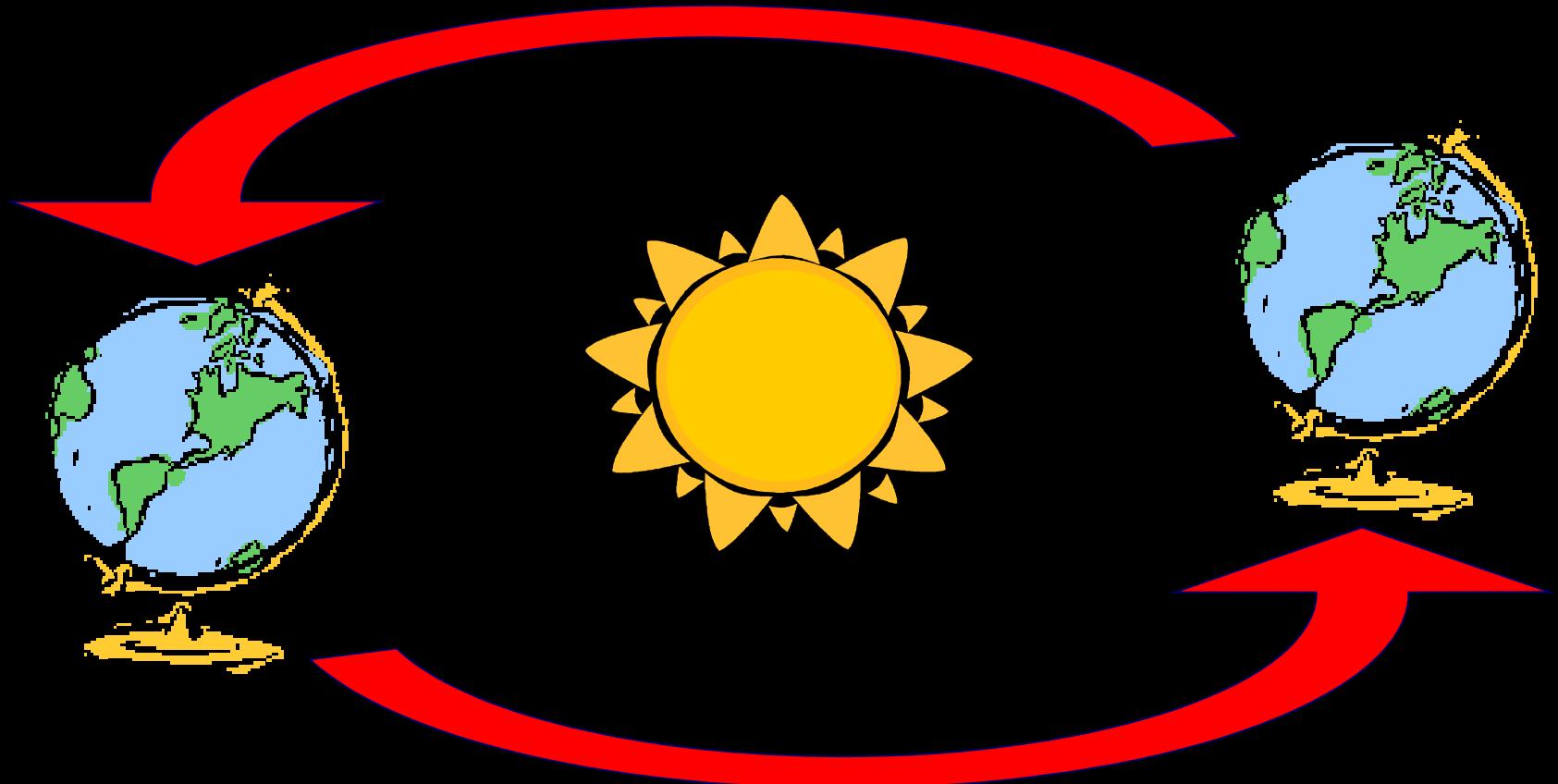
This part is in day.



This part is in night.

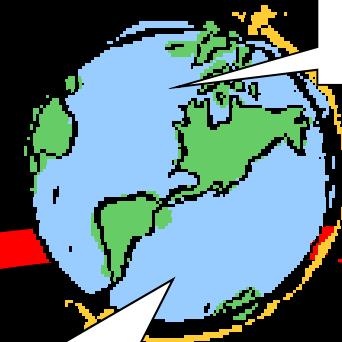
**The other half faces away from the Sun,
and so receives very little light.**

What causes the Earth's seasons?



As the Earth orbits the Sun, when its axis tips towards the Sun, the weather gets warmer. When it tips away, the weather gets colder, causing the Earth's seasons.

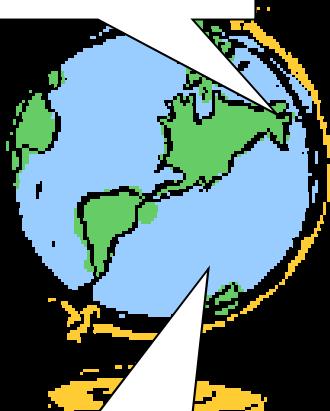
In the northern hemisphere:



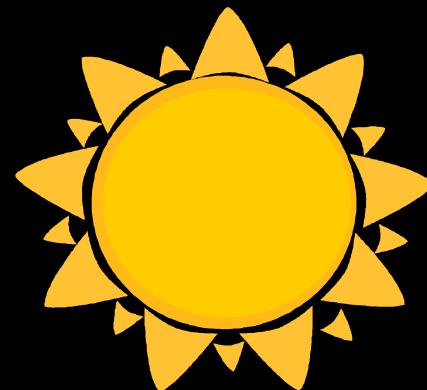
spring here

autumn here

summer here



winter here



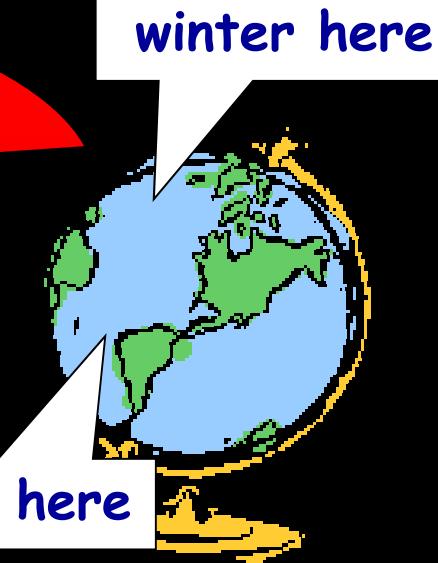
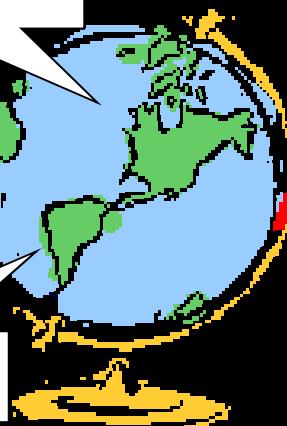
summer here

winter here

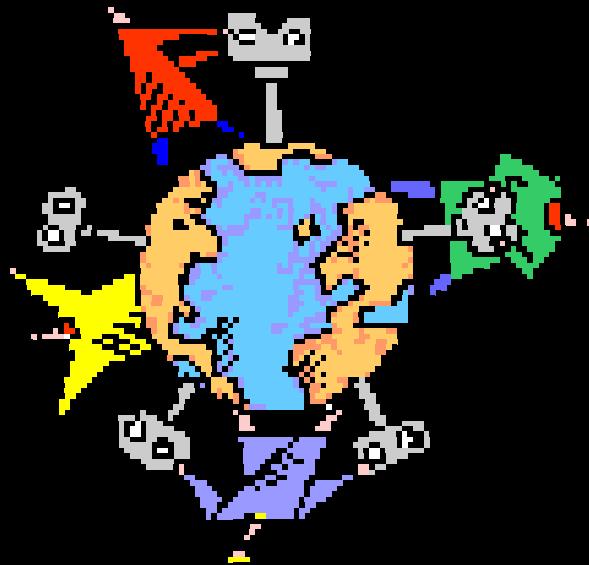
autumn here

spring here

In the southern hemisphere:



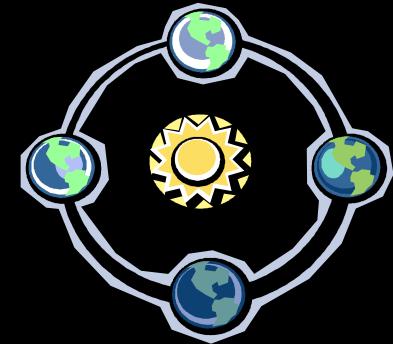
The Earth rotates on its axis at c 900 miles an hour!
As it rotates, the Earth is also orbiting the Sun at a
speed of c 67,500 miles an hour!



But, don't worry! Thanks to the
Earth's gravity and atmosphere,
we won't fall off.

So, when the Sun ‘rises’ in Great Britain, on the other side of the world, it’s about to ‘set’.

Great Britain



Now, with your partner, discuss these ideas about the moon:



I think the moon is a light source?



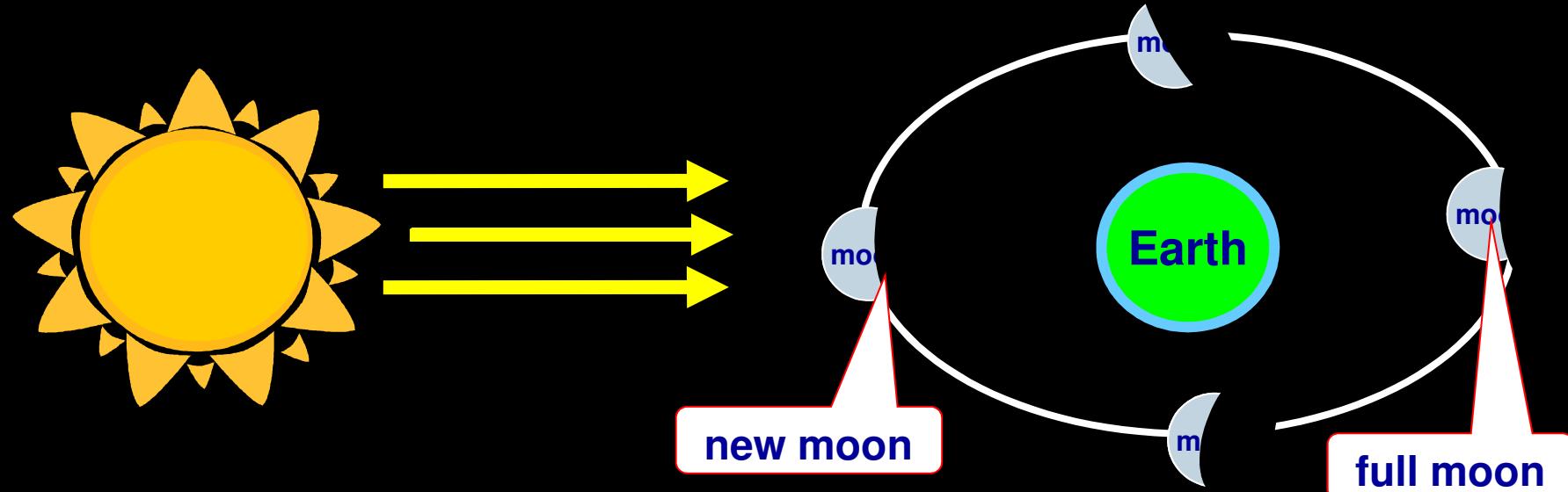
I think it keeps changing shape?



It's some sort of a cycle!



Why does the moon appear to change shape?



- ❖ It takes the moon 28 days to orbit the Earth.
- ❖ For 27 days out of this cycle, the Sun cannot shine on the whole of the surface, facing the Earth.
- ❖ The light from the Sun can only shine on the whole surface for one night in each cycle: a full moon.
- ❖ On one night, no light from the Sun can reach the moon at all: a new moon.

Do you know...

- ✿ how long it takes the Earth to spin round once? *It takes 24 hours.*

- ✿ which direction the Earth turns?
It turns anti-clockwise.

- ✿ how long it takes the Earth to orbit the Sun once? *It takes $365\frac{1}{4}$ days.*

- ✿ which direction the Earth orbits the sun? *It turns anti-clockwise.*



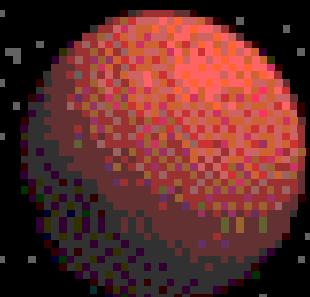
Did you know?

One day on Venus
lasts 117 Earth days.



Jupiter whips around in
just 9 hours and 57 minutes.

One day on Mars is about the
same as one day on Earth.



Now, explain to your partner:

*How long does it take
for the Earth to turn
once?*

*Why does the Sun
appear to rise and
set?*

*In which direction does
the Earth spin on its axis?*



*Why, if it is day in New
Zealand, it is night in
England?*

*Why does the moon
appear to change
shape?*

*In which direction
does the Earth orbit
the Sun?*