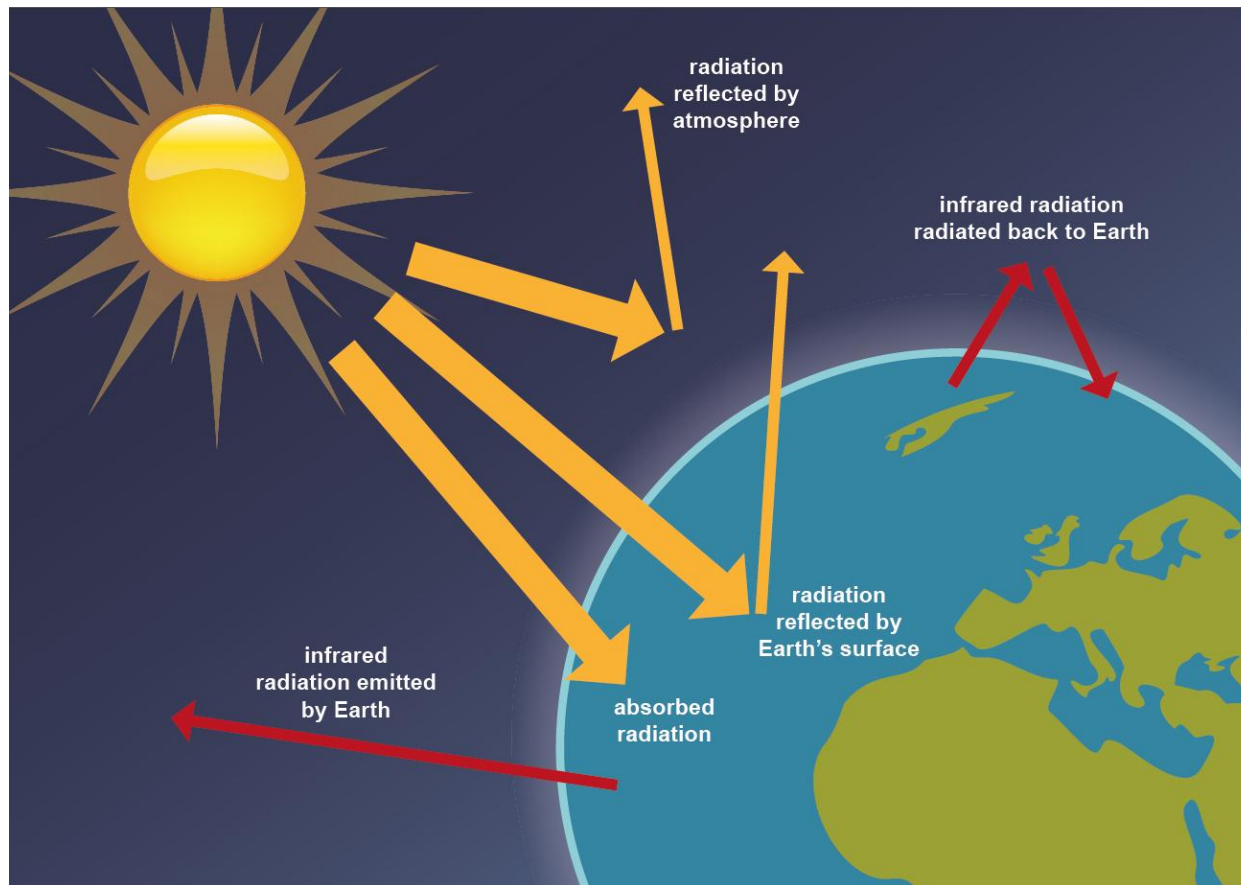


## Scientists think that Venus underwent global warming billions of years ago due to the greenhouse effect.



Llywodraeth Cymru  
Welsh Government

Here is some information about what scientists call the 'greenhouse effect' and about the planet Venus and Earth.

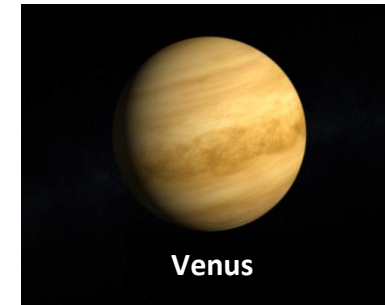


Scientists think that Venus used to be more similar to Earth than it is now, with lower temperatures and even liquid water on the surface of the planet. At some point, billions of years ago, the planet started to heat up. All the water on the surface of Venus evaporated into the atmosphere. Water vapour and carbon dioxide began to dominate the atmosphere and this caused temperatures to rise even more. Then the surface of Venus got so hot that the carbon trapped in rocks sublimated into the atmosphere and mixed with oxygen to form even more carbon dioxide.



Asia's biggest river is experiencing its worst drought in 50 years – damaging crops, threatening wildlife and raising doubts about the viability of China's massive water diversion ambitions.

### Venus compared with Earth



Venus is the second planet from the Sun and the sixth largest. Venus' orbit is nearly circular compared with those of other planets.

Venus' rotation is very slow compared to the Earth – 243 Earth days per Venus day. In addition the periods of Venus' rotation and of its orbit are synchronized such that it always presents the same face toward Earth when the two planets are at their closest approach. There are strong winds (350kph) at the cloud tops but winds at the surface are very slow, no more than a few kilometres per hour.

Venus is sometimes regarded as Earth's sister planet. In some ways they are very similar: Venus is only slightly smaller than Earth (95% of Earth's diameter, 80% of Earth's mass). Both have few craters indicating relatively young surfaces. Their densities and chemical compositions are similar.

Because of these similarities, it was thought that, below its dense clouds, Venus might be very Earth like and might even have life. But, unfortunately, more detailed study of Venus reveals that in many important ways it is radically different from Earth. It may be the least hospitable place for life in the solar system.

### **The task**

Use the information sheet provided and your knowledge of science to explain the following:

- how the greenhouse effect has successfully helped to sustain life on Earth
- why the greenhouse effect could be a problem now and in the future on Earth – focus on your reasoning and your evidence from similar activity on Venus
- how, by our actions today, we might be able to reduce the negative effects of the greenhouse effect.