Discovering Venus - Activities (Ages 12-15)

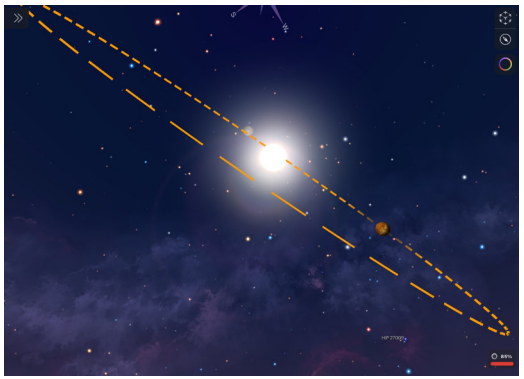
Today we are going to investigate:

- How to find Venus in the sky
- How the position of Venus changes in the sky
- How long Venus takes to orbit the Sun
- The physical characteristics of Venus

Activities

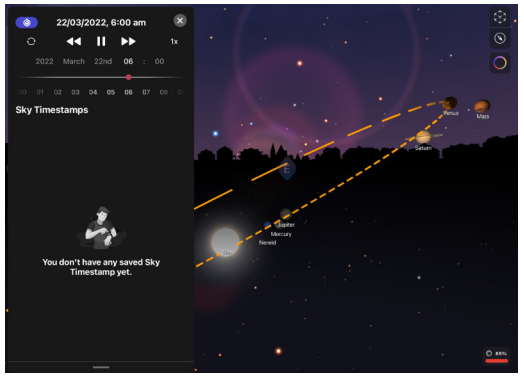
1 Start up Night Sky and move around the sky to find the planet Venus (Tip: if you can't find it, try typing 'Venus' into the Search box). Tap on Venus to see its orbital path.

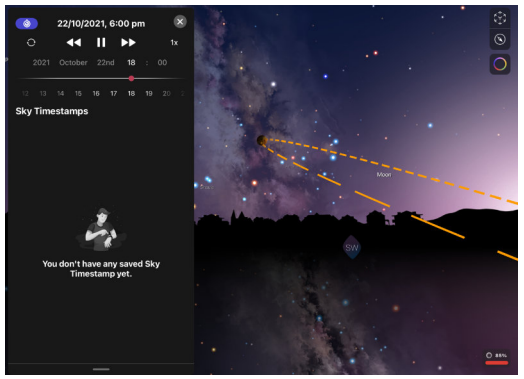
Question: Can you tell if Venus's orbit is closer or further from the Sun than Earth's?



2 In ancient times Venus was sometimes called the "Morning Star" and sometimes called the "Evening Star" Let's investigate why. Use the Space Travel Tab to set the time and date to 06.00 on March 22, 2022 and find Venus in the pre-dawn eastern sky. You will see the Sun is under the horizon and Venus is visible in the sky at one side of its orbit. Then change the time and date to 18.00 on October 22, 2021, you will see the Sun has set and Venus is visible in the evening sky.

Question: Based on your observations, can you explain why it is not possible to see Venus at midnight? (Tip: advance the time to midnight and see where Venus is.)





3 Double tap on Venus to see the planet's 3D model. Venus is covered with an unbroken layer of white clouds. These help make it appear very bright in the sky but also hide its surface features. These clouds are not shown in the 3D model so you can clearly see the planet's surface. Venus is classed as a **terrestrial planet**. This means that is mostly composed of rock and metal like Earth.

Question: How do you think scientists were able to accurately map Venus thorough its cloud layer?

a) by exploring the surface with rovers
b) using infra red telescopes
c) scanning the surface with radar

4 Venus has an extremely dense atmosphere which is largely composed of carbon dioxide. These two factors determine the current surface conditions on the planet.

Question: Compared to Earth do you think atmospheric temperatures and pressures on Venus are:

a) Cooler and lower pressure
b) Hotter and higher pressure
c) Roughly the same

5 Venus and Earth are roughly the same size. In the past their similarity in Venus led to Venus being nicknamed “Earth's sister planet”.

Question: Do you think this nickname is still valid? Give reasons for your answer.

What we have discovered:

- Venus is a rocky planet like Earth
- It can be seen the morning and evening skies
- The surface of Venus is hidden by clouds
- Venus has a hot and dense atmosphere