

Outline for 02 November (Thursday)

- Mercury
- Venus



Video On Mercury (10 minutes)

- The Complete Cosmos, Home Star: The Sun, the Planets, and Mercury (Johnson Center) DVD QB 44.2.C66 2003 disc 2
- If you want to view this, please do not check out. Instead, view it in the library so other students may see it.

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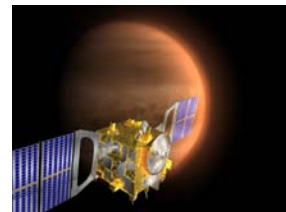


Interesting facts



- Mariner 2 visited in 1962

- Venus Express – recently arrived



Video On Venus (10 minutes)

- The Complete Cosmos, Venus and Mars: Earth's Sisters (Johnson Center) DVD QB 44.2.C66 2003 disc 3
- If you want to view this, please do not check out. Instead, view it in the library so other students may see it.

Key Terms

- equilibrium resurfacing hypothesis
- global catastrophe hypothesis
- prograde rotation
- retrograde rotation
- runaway greenhouse effect

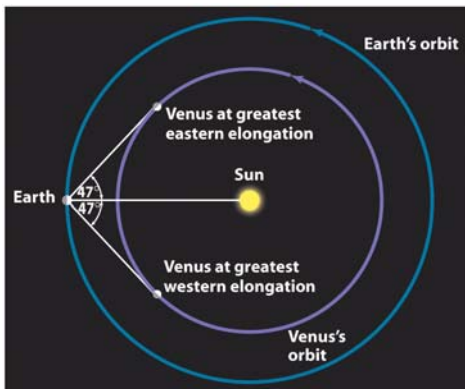
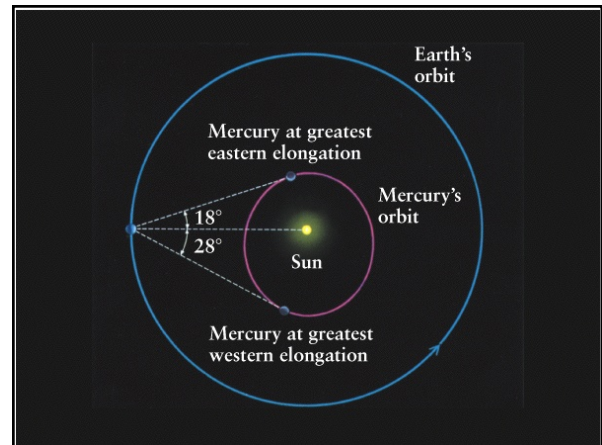
Guiding Questions

1. What makes Venus such a brilliant “morning star” or “evening star”?
2. What is strange about the rotation of Venus?
3. In what ways does Venus’s atmosphere differ radically from our own?

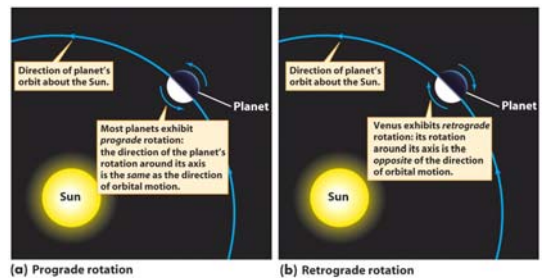
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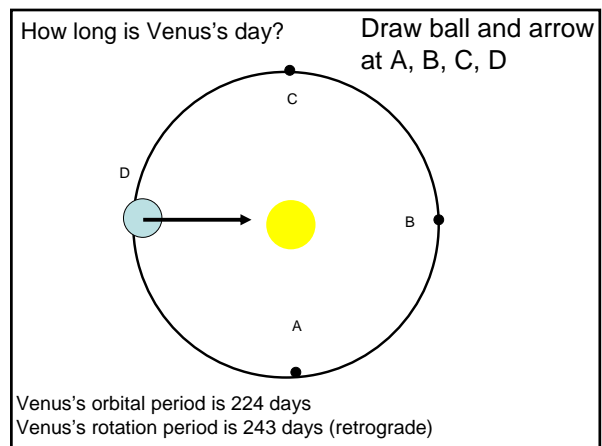
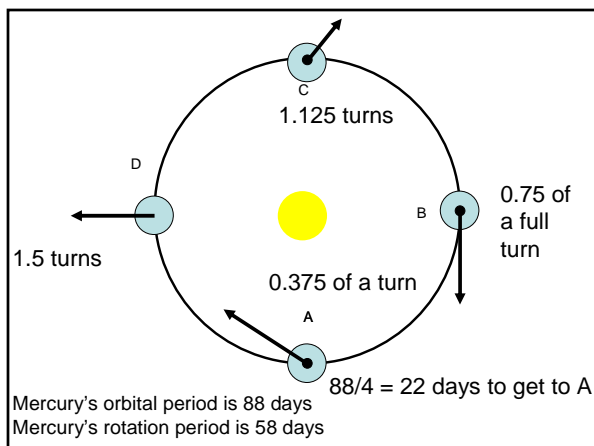
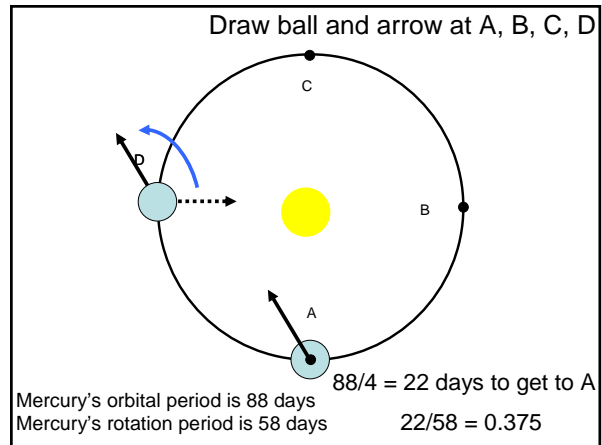
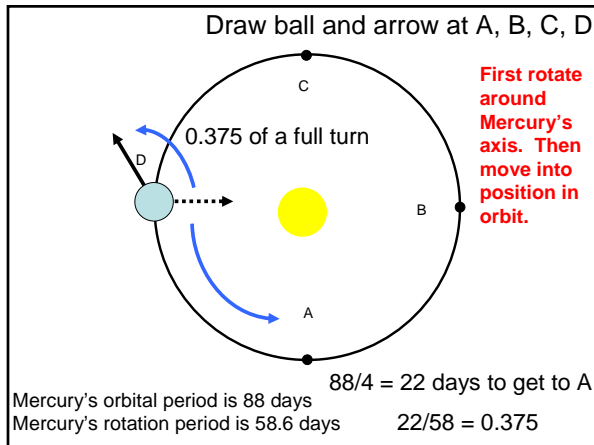
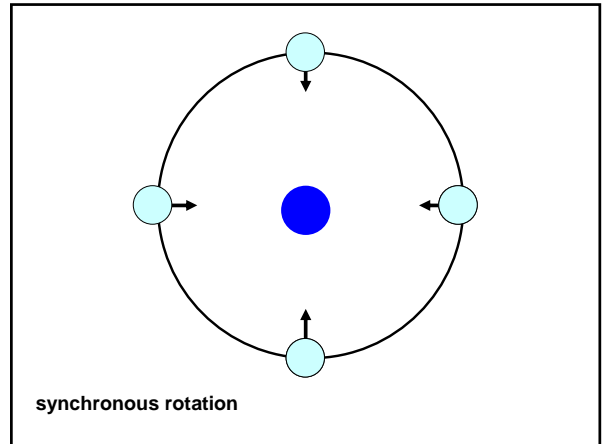
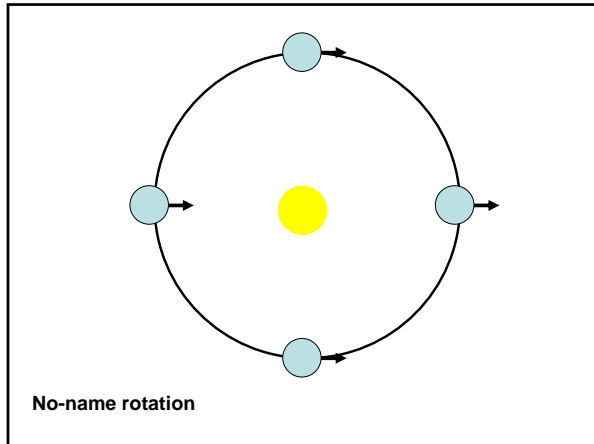
4. Why do astronomers suspect that there are active volcanoes on Venus?
5. Why is there almost no water on Venus today? Why do astronomers think that water was once very common on Venus?
6. Does Venus have the same kind of active surface geology as the Earth?

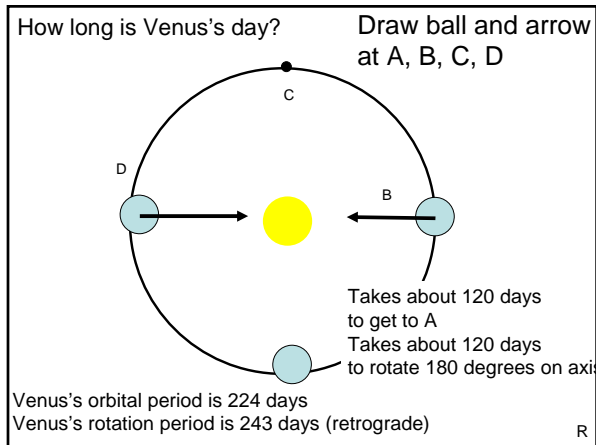
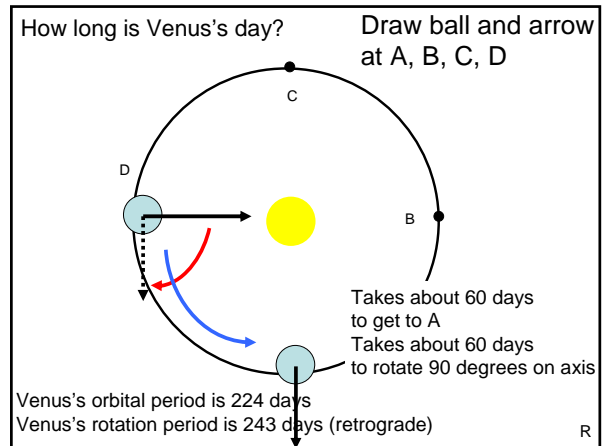
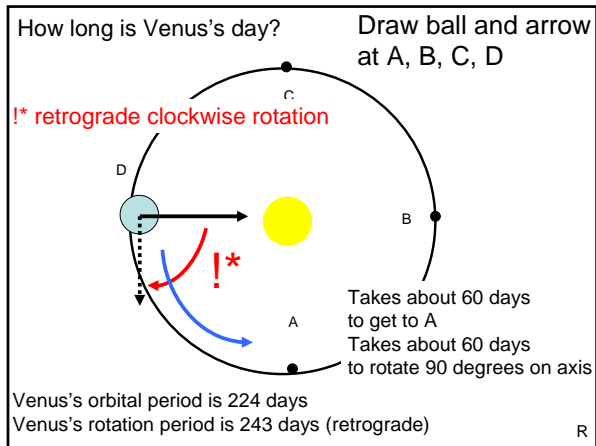
It is hard to see!



Venus's rotation is slow and retrograde (“retro”)







The climate on Venus followed a different evolutionary path from that on Earth

- Venus's high temperature is caused by the greenhouse effect, as the dense carbon dioxide atmosphere traps and retains energy from sunlight.
- The early atmosphere of Venus contained substantial amounts of water vapor
- This caused a runaway greenhouse effect that evaporated Venus's oceans and drove carbon dioxide out of the rocks and into the atmosphere

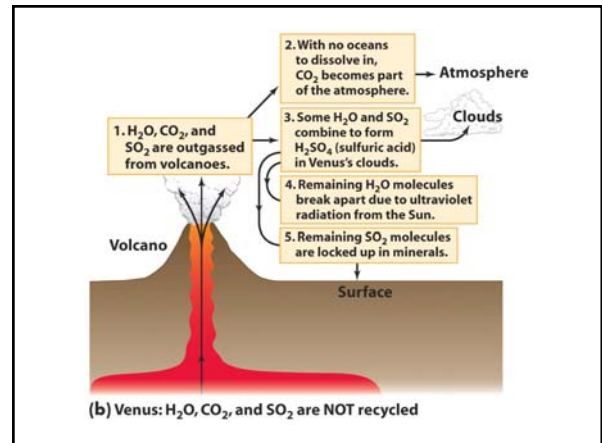
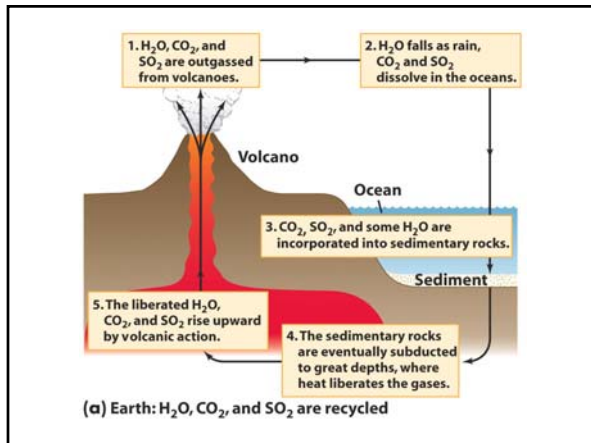
The climate on Venus followed a different evolutionary path from that on Earth

- Almost all of the water vapor was eventually lost by the action of ultraviolet radiation on the upper atmosphere.
- The Earth has roughly as much carbon dioxide as Venus, but it has been dissolved in the Earth's oceans and chemically bound into its rocks

Runaway Greenhouse Effect

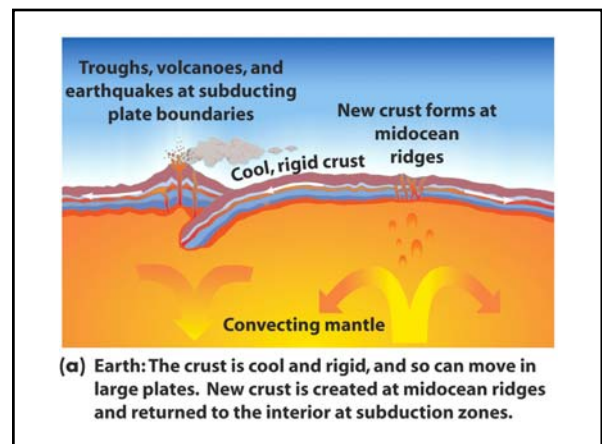
Volcanic eruptions are probably responsible for Venus's clouds

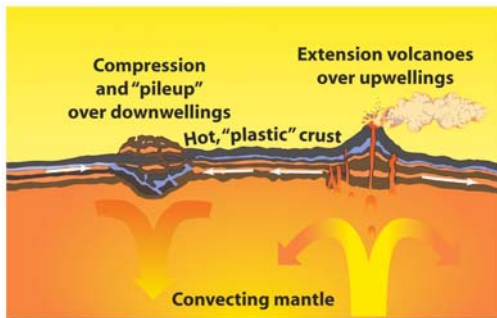
- Venus's clouds consist of droplets of concentrated sulfuric acid
- Active volcanoes on Venus may be a continual source of this sulfurous material



The surface of Venus shows no evidence of plate tectonics

- The surface of Venus is surprisingly flat, mostly covered with gently rolling hills
- There are a few major highlands and several large volcanoes
- The surface of Venus shows no evidence of the motion of large crustal plates, which plays a major role in shaping the Earth's surface





(b) Venus: The crust may be too hot and soft to move in rigid plates. The absence of water may limit motions beneath the crust.

Guiding Questions

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