



**Bagaimanakah  
bentuk bumi?**

**Bulat !  
Hehe... semua  
orang juga tahu**

**Apa buktinya?**

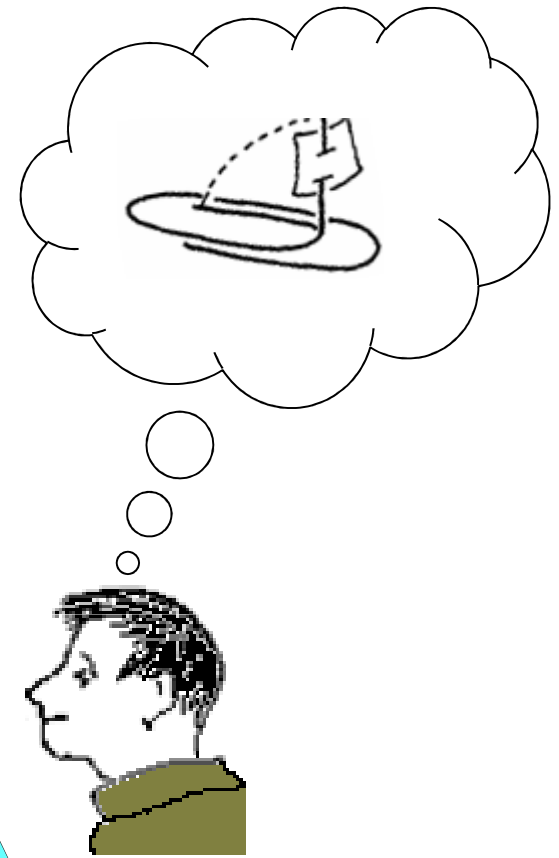
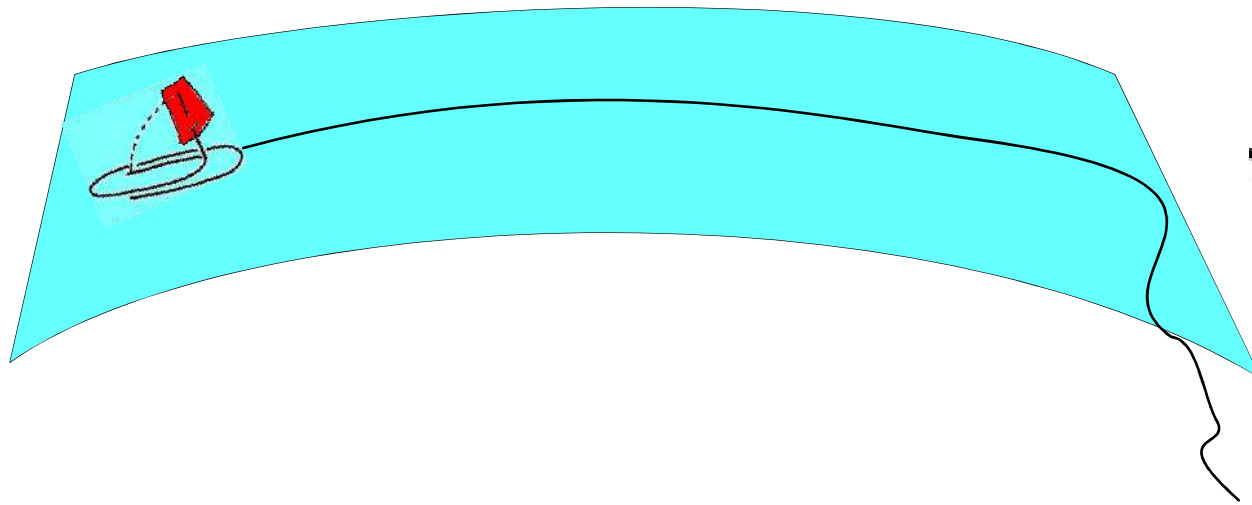
**Ehm.....  
apa ya?**



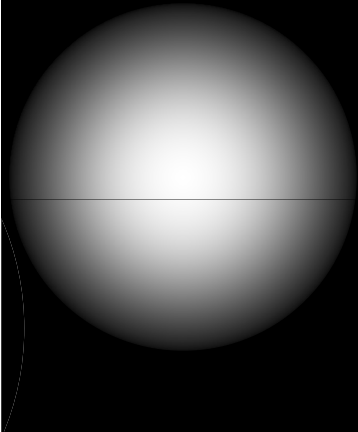
## **Proofs that the Earth is Round**

- **Ships appearing to sink as they go over the horizon.**
- **The Earth's shadow on the moon during an eclipse is always curved. This could only be possible if the Earth was a sphere.**
- **Different time zones.**
- **Different angles to Polaris as you travel N. or S.**
- **Photos from space- the best proof**

# Bumi bulat



# Bayangan bumi pada bulan saat gerhana bulan



# Earth Shadow during Lunar Eclipse



# Time zones



# Earth from the moon



Encarta Encyclopedia, NASA



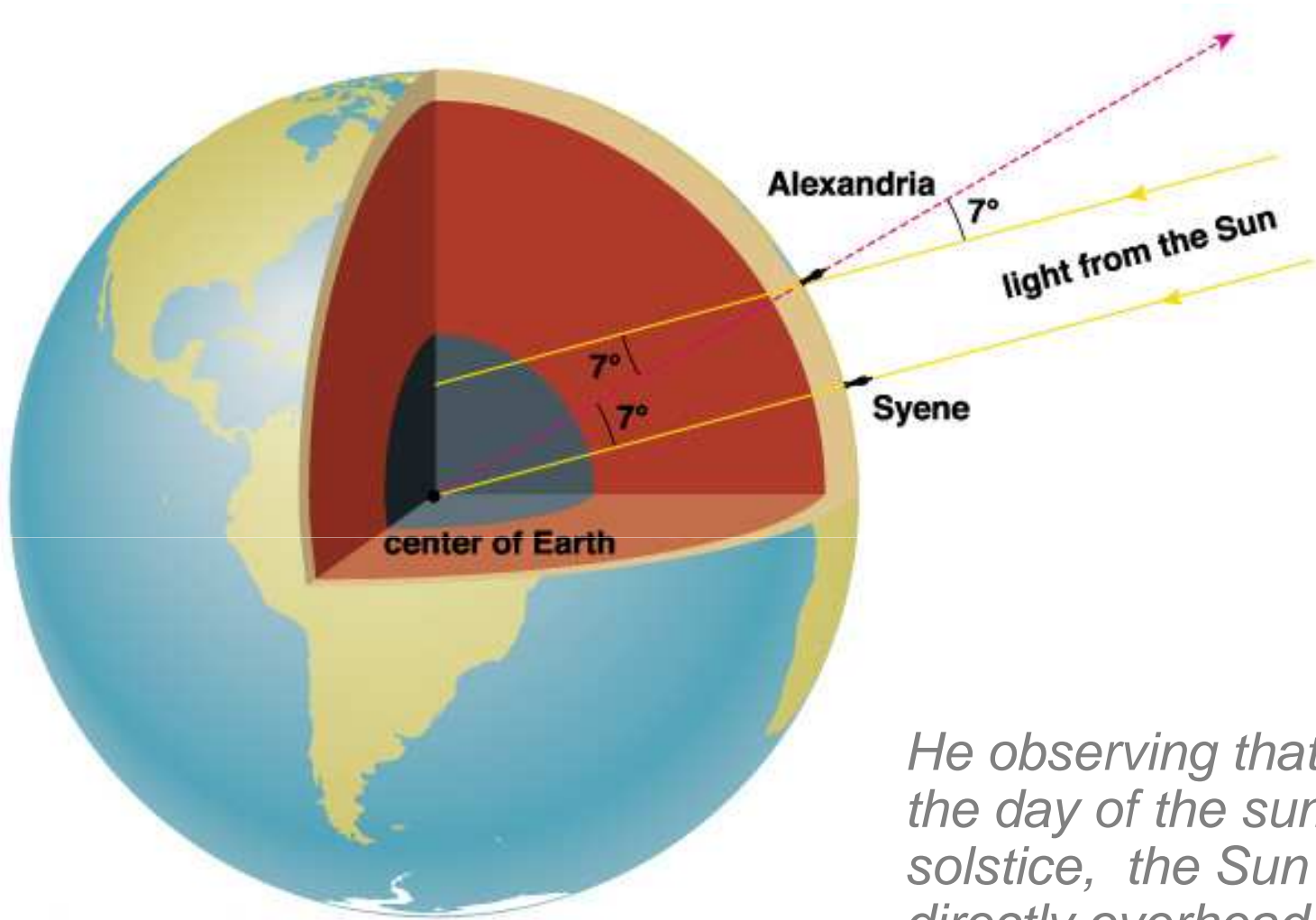
# Eratosthenes (240 BC)



He made an accurate measurement the diameter of the Earth



Library in Alexandria



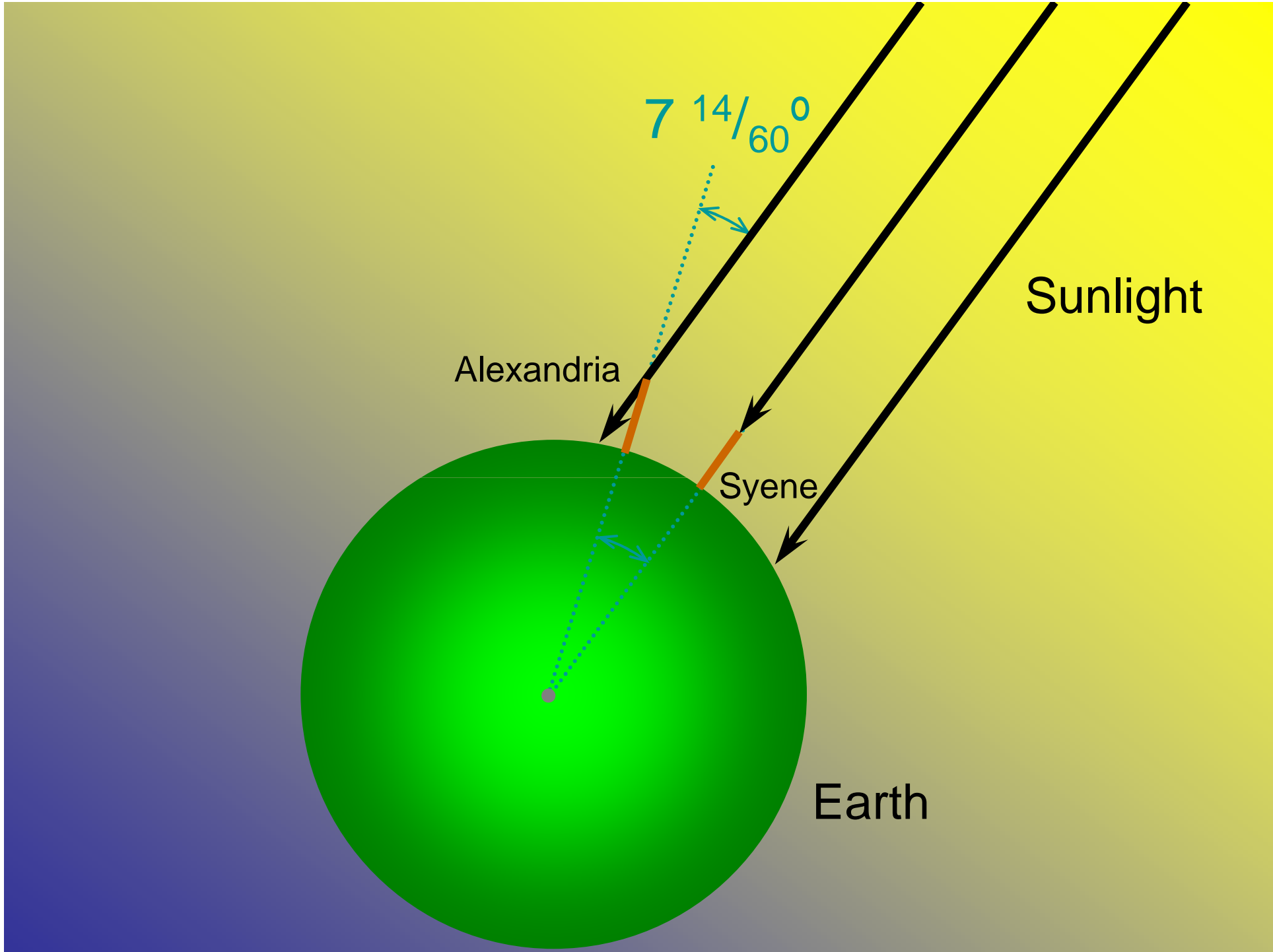
*He observing that, on the day of the summer solstice, the Sun was directly overhead in Syene while it was  $7^\circ$  from the zenith in Alexandria.*



Cyrene

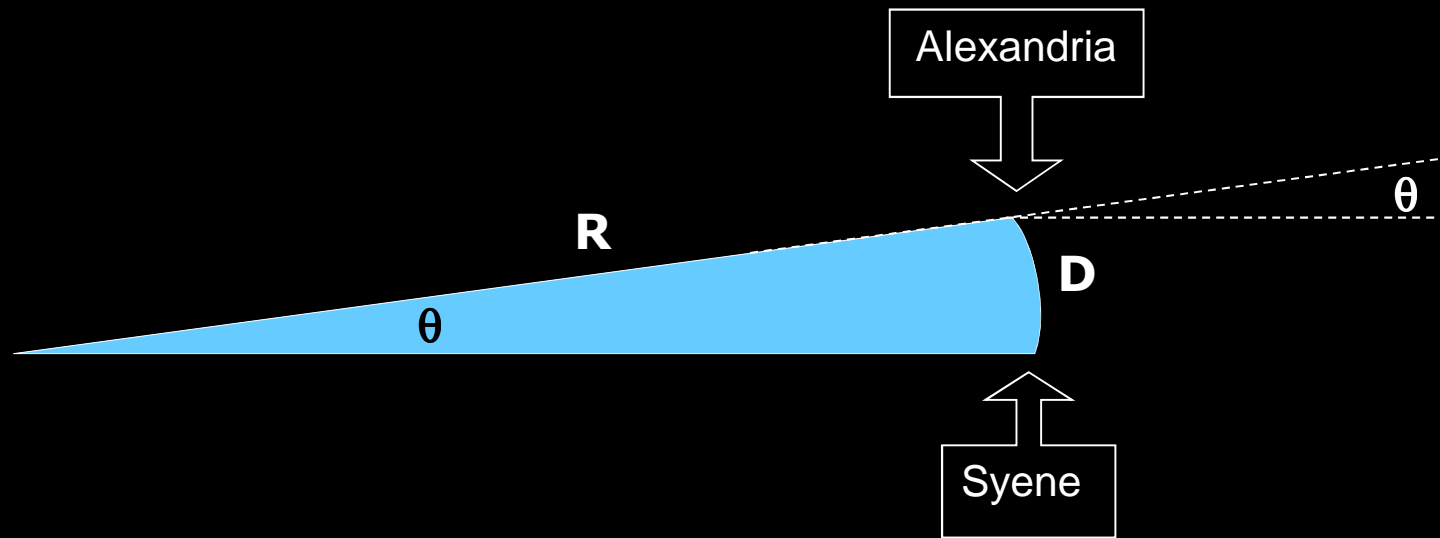
Alexandria

Syene



# Eratosthenes

Measured the altitude of the noontime sun at Alexandria at its maximum on Jun 21<sup>st</sup>. On that date, the Sun is directly overhead at noontime at Syene.



$$\frac{\theta}{360^{\circ}} = \frac{D}{2\pi R}$$

## **Tugas** (seperti yang dilakukan Eratosthenes)

- Anda tentukan dua kota A dan B yang berbeda.
- Cari data jarak antara kedua kota tersebut.
- Cari data koordinat (lintang dan bujur) kedua kota tersebut.
- Dari data-data kedua kota tersebut, tentukan jari-jari bumi !