

# 1. Earth as a cosmic matter

The Earth is a part of expanding universe which was created by **Big Bang** 15 billion years ago (the most common theory). The result of the Big Bang was creation of a cosmic matters, such as stars, planets, moons, comets...Earth and the other planets in the Solar System were formed 4.54 billion years ago.

The **Earth** is the 3 of 8 planets of **Solar System**. The **Sun** is the centre of this system which is located 26,000 light years from the centre of our barred spiral galaxy - **Milky Way**. The Sun consists mostly of gases -hydrogen and helium and it is 100x bigger than the Earth. The distance between the Earth and the Sun is approximately 150 000 000 km.



**Do You know 8 planets of the Solar system?**

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**Do You know any comets in the Solar system?**

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The basic feature of all cosmic matters is **motion – rotation**. The result of this motion is the globular shape.

## **History of astronomy**

Yet in ancient times, people knew the Earth has *globular shape*. Important people who proved this shape:

§ *Aristotle, Ptolemy* = geocentric system

§ *Nicolaus Copernicus* = heliocentric system

§ *Tycho Brahe* = geo-heliocentric system

§ *Johannes Kepler's* principles of celestial bodies' motion

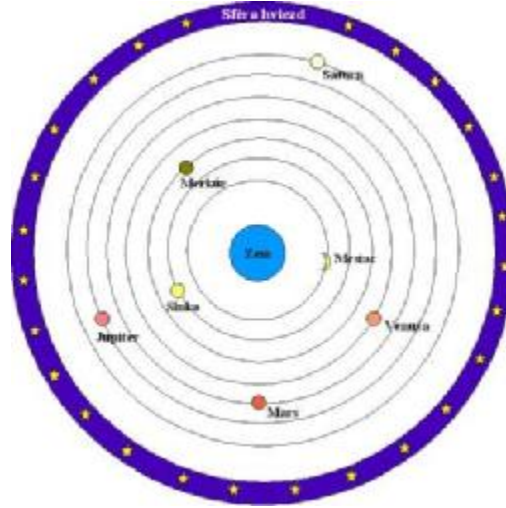
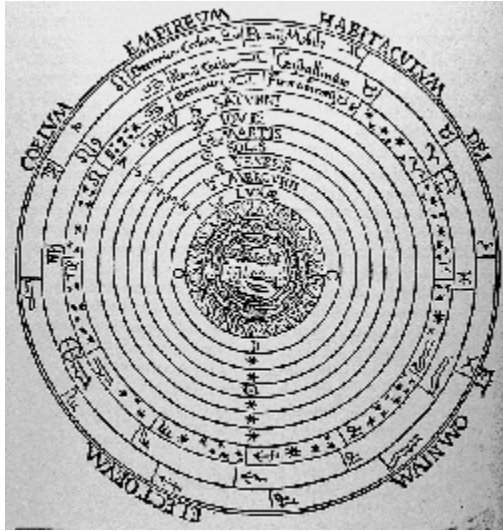
- The law of trajectories: The orbit of every planet is an ellipse with the sun at one of the focus.
- The law of equal areas
- The law of the orbital periods

§ *Isaac Newton's* gravitational principle

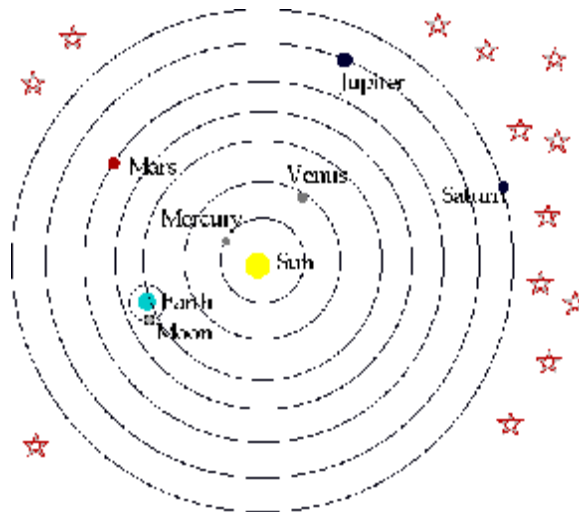
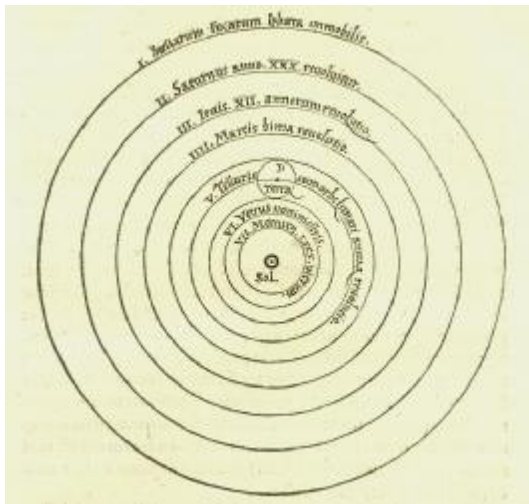
## **Keywords**

cosmic matter, universe, Big Bang, Solar System, light year, barred spiral galaxy, Milky Way, hydrogen, helium, rotation, globular shape, geocentric/heliocentric/geo-heliocentric system, celestial bodies, gravitational principle

### Aristotle's geocentric model



### Copernican heliocentric model



### Tycho's geo-heliocentric model

