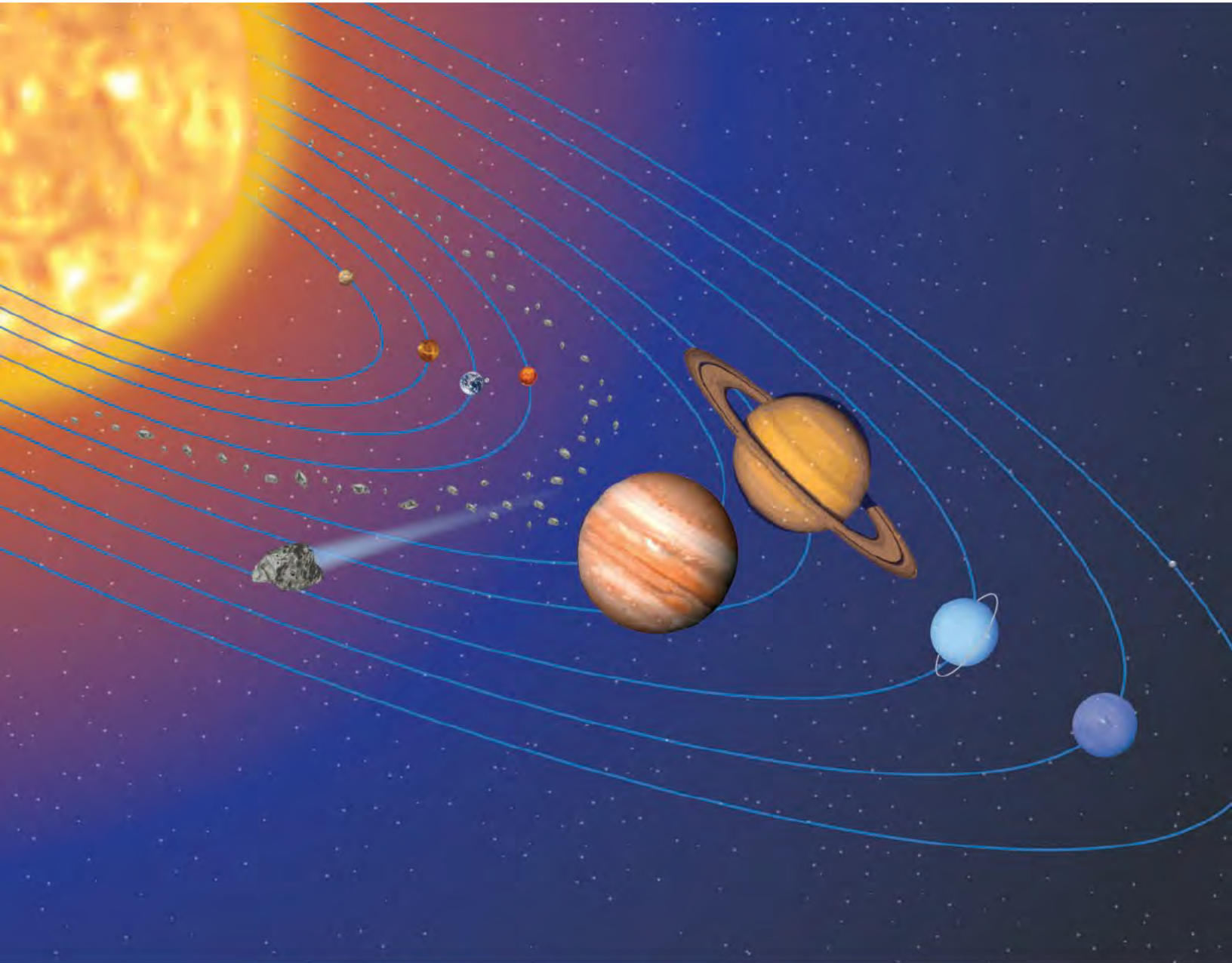


# Our Solar System *Learning Guide*



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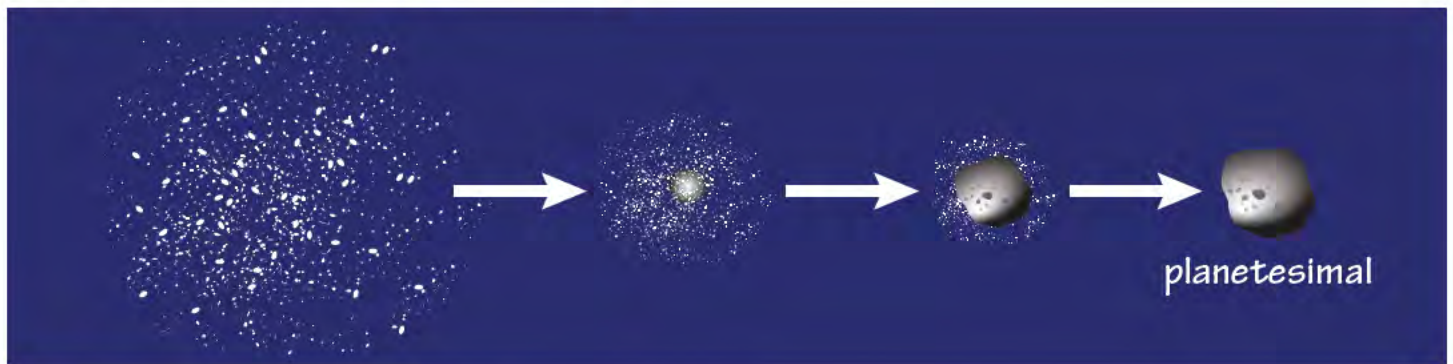
# FORMATION OF OUR SOLAR SYSTEM

## Nebulae

Solar systems begin in dusty gas clouds called **nebulae** that are found between stars. The dust is composed of elements like **iron** and **carbon**. Nebula gases include **hydrogen** and **helium**.

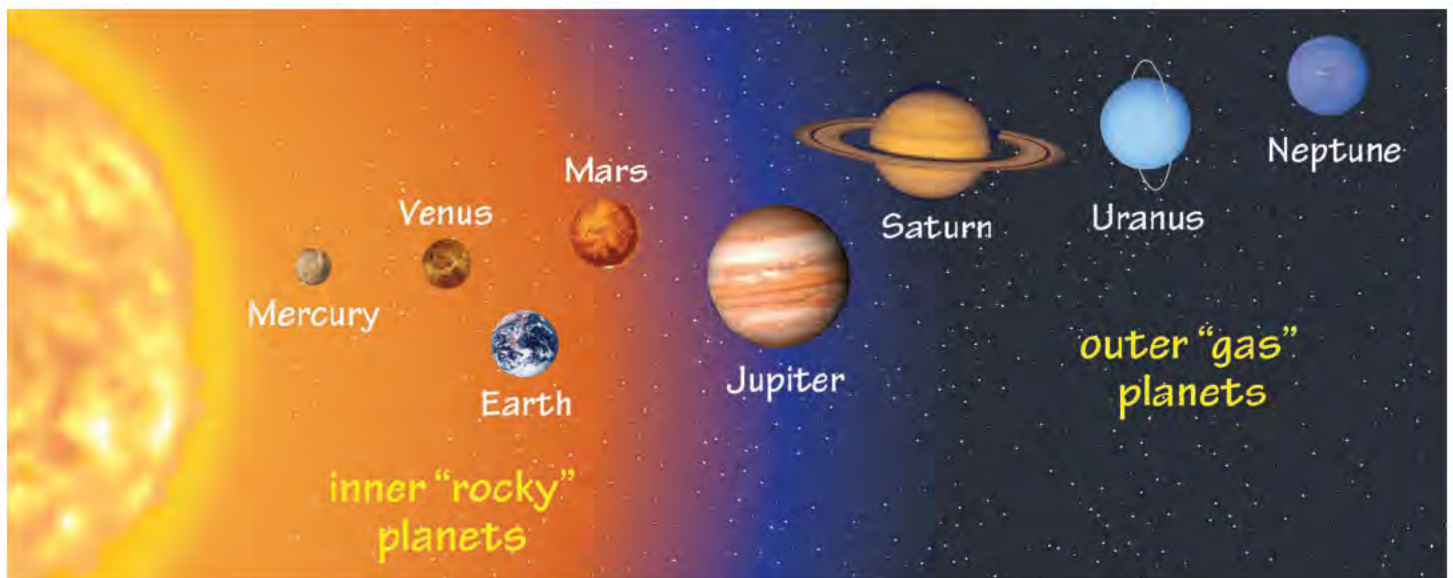
## Planetesimals

Within a **nebula**, dust particles collide and stick together to form larger particles. This process is called **accretion**. The particles grow from pebbles, to rocks, to boulders. The larger particles are called **planetesimals**.



## Rocky & Gaseous Planet Formation

Rocky **planetesimals** near the Sun grew by **accretion** to become the rocky planets—**Mercury**, **Venus**, **Earth** and **Mars**. In the colder outer parts of the solar system, frozen gases accreted to rocky cores to form the gas giant planets—**Jupiter**, **Saturn**, **Uranus** and **Neptune**.

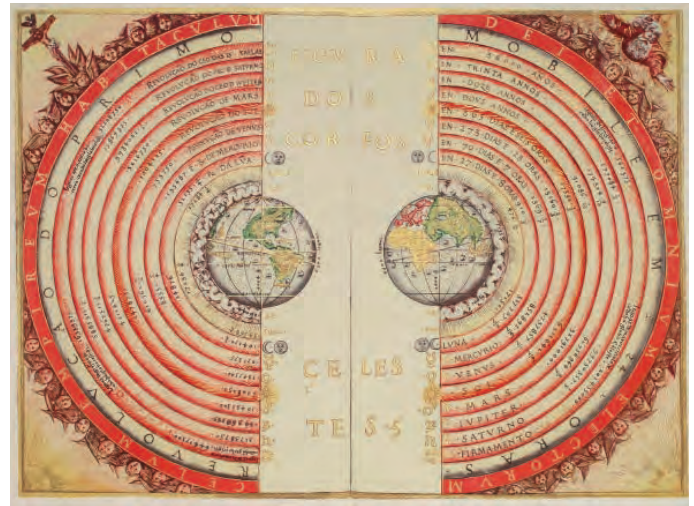




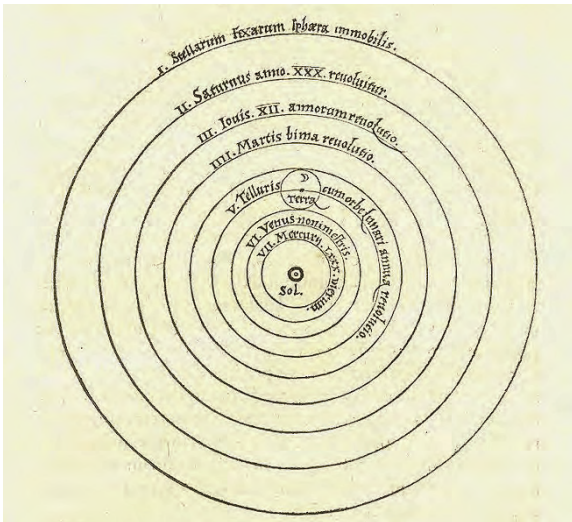
# GEOCENTRIC & HELIOCENTRIC SYSTEMS

## Geocentric Universe Concept

Before the invention of the **telescope**, the solar system was described in relation to the Earth. In 140 AD, the Greek astronomer **Ptolemy** believed that the Earth was the center of the universe, and the Sun and planets revolved around the Earth. This is the **geocentric concept** of the universe.



Ptolemaic/geocentric model



Copernican/heliocentric model

## Heliocentric Universe Concept

In 1543 **Copernicus** published a theory about the universe. He claimed that the Sun is the **center** of the universe and all the known planets revolved around the Sun. This is the **heliocentric concept** of the universe.

## A Heliocentric Solar System

Today we know that the Sun is the center of our **solar system** – a collection of planets orbiting a single star, the **Sun**.

