The Solar System
How did our Solar System Form?

- 5 billion years ago

- Planets formed from left over gas and dust from the birth of the Sun

- The accretion (coming together) of matter due to gravity created the planets.
Geocentric vs. Heliocentric Model
Geo-centric Model

• Geo = Earth

• Centric = Centered

• The earth is at the center of the solar system.

• All other objects revolve around earth.
Helio-centric

- Helio = Sun
- The sun is at the center of the solar system.
- Discovered by Copernicus in the 16th century.
Distant, motionless stars

- Saturn
- Jupiter
- Mars
- Moon
- Earth
- Venus
- Mercury
- Sun
The Inner Planets (Terrestrial)

- Terrestrial Planets = “Earth-like”
- Mercury, Venus, Earth, & Mars
- Relatively small
- Surface made of solid rock
- Solid Cores
- Surface dotted with impact craters
- Few moons, if any
The Asteroid Belt

• Chunks of ice and rock found between Mars & Jupiter

• Jupiter’s large mass & gravity probably prevented these pieces from becoming the fifth terrestrial planet
Jovian Planets

- Jupiter, Saturn, Uranus, Neptune
- Extremely large planets
- Surface of planets are made up of gas (Gas Giants)
- Many moons
- Some have rings
- Jupiter: Molecular hydrogen, Metallic hydrogen
- Saturn: Hydrogen, helium, methane gas
- Uranus: Mantle (water, ammonia, methane ices)
- Neptune: Core (rock, ice)
Comets

- Small bodies of rock, iron and frozen water that orbit the sun in extremely elliptical path.
- As they get close to the sun the water vaporizes leaving a tail of dust and debris.
Comet Hale-Bopp
Hale-Bopp
1997

Won’t be back for 1000’s of years
Halley’s Comet
1986
It will be back in 2061
Comet Shoemaker-Levy 9 colliding with Jupiter (1993)
Meteors (Shooting Stars)

- Range in size from a grain of sand to a softball
- As it enters Earth’s atmosphere, it heats up due to friction with the gases in Earth’s atmosphere and leaves a streak
- If the meteor survives and hits the ground it’s called a meteorite
What are Meteor Showers?

Comet particles are spread out along the orbit, most concentrated near comet.
Comet
A chunk of ice and rock originating from the outer solar system, often accompanied by a coma and tail.

Asteroid
A rock in orbit generally between Mars and Jupiter. Sometimes Asteroids get bounced towards Earth.

Meteoroid
A space rock that’s bigger than a dust grain but smaller than an asteroid. If it strikes Earth it is then a Meteorite

Meteor
The streak of light seen when a space rock enters the atmosphere and starts burning up. A.K.A. “falling star.”

Meteorite
If a meteor doesn’t entirely burn up, a piece of space rock that lands on Earth is called a meteorite.
• Size Comparison video (saved)

http://earthsky.org/space/video-the-solar-system-to-scale#.Vf8nVTQq79w.email