

 Space

- ✓ **Star:** a sphere of plasma and gas, giving off light, held together by its own gravity
- ✓ **Planet:** a large, round body orbiting a star
- ✓ **Satellite:** orbits a planet; a moon is a natural one
- ✓ **Star system:** a star and everything orbiting it; **galaxy:** stars, planets and dust held together by gravity
- ✓ The universe is about **13.8 billion years** old
- ✓ Our solar system, in the Milky Way, has **8 planets:** Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune

 Earth and Moon

- ✓ Earth, **third** from the Sun, spins once every **24 hours** (a day) and orbits once in about **365 days** (a year)
- ✓ Its axis tilts about **23.5°**, which makes the seasons, opposite in the two hemispheres
- ✓ The Moon orbits in about 27 days and spins once in the same time, so one side always faces us: it is **tidally locked**
- ✓ It shines by reflected sunlight; its **phases** cycle every 29.5 days
- ✓ Mercury and Venus have no moons

 Weather and climate

- ✓ **Weather:** day-to-day conditions; **climate:** the long-term average, usually 30 years or more
- ✓ **Polar:** least direct sun; 24-hour days in summer and nights in winter
- ✓ **Temperate:** four seasons; **subtropical:** hot summers, mild winters
- ✓ **Tropical:** at the equator; most direct sun; about 12 hours of daylight all year

 The rock cycle

- ✓ **Igneous:** molten rock (magma or lava) that cooled and crystallized
- ✓ **Sedimentary:** broken-down rock deposited, compacted and cemented
- ✓ **Metamorphic:** rock changed by heat and pressure without melting
- ✓ **Tectonic plates** of crust and upper mantle collide, pull apart or slide past each other: volcanoes, earthquakes, mountains
- ✓ Rock breaks down **mechanically** (wind, water, rockslides) or **chemically** (oxidation, acid rain)

 The water cycle

- ✓ **Evaporation:** the Sun turns surface water into vapor
- ✓ **Condensation:** vapor cools higher up into droplets and ice crystals: clouds
- ✓ **Precipitation:** they fall as rain, or as hail, sleet or snow

 The atmosphere

- ✓ **Nitrogen 78%, oxygen 21%, argon 1%, and 0—4% water vapor**
- ✓ Supplies oxygen and carbon dioxide, blocks ultraviolet light, and holds in heat
- ✓ Five layers, from the ground up:
 - **Troposphere:** nearly all the weather and water; cools with height
 - **Stratosphere:** the ozone layer, which absorbs ultraviolet light
 - **Mesosphere:** the coldest layer; meteors burn up here
 - **Thermosphere:** the hottest; auroras and many satellites
 - **Exosphere:** so thin it fades into space