

What Makes up the Universe?

Chapter 9 Lesson 3
Part 1

ByDesign Science, Level 4
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Constellations



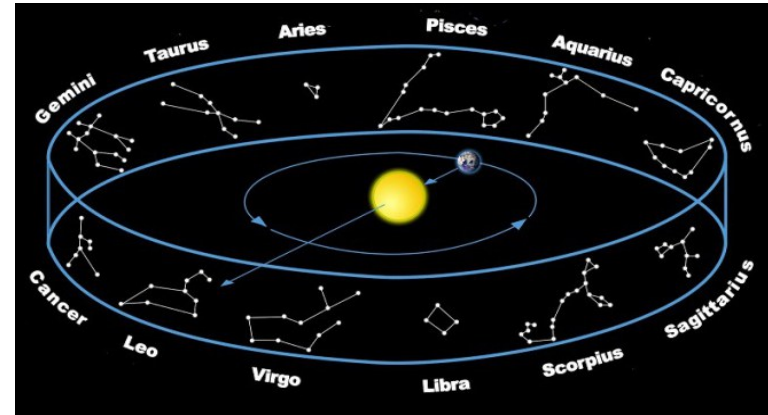
- ♦ Early people looked at the stars throughout the sky and thought they saw familiar patterns, animals, humans, or other objects in certain groups of stars.
- ♦ The groups of stars that form images are constellations.
- ♦ Ancient astronomers identified 48 constellations. Today we recognize 88 constellations.

Constellations



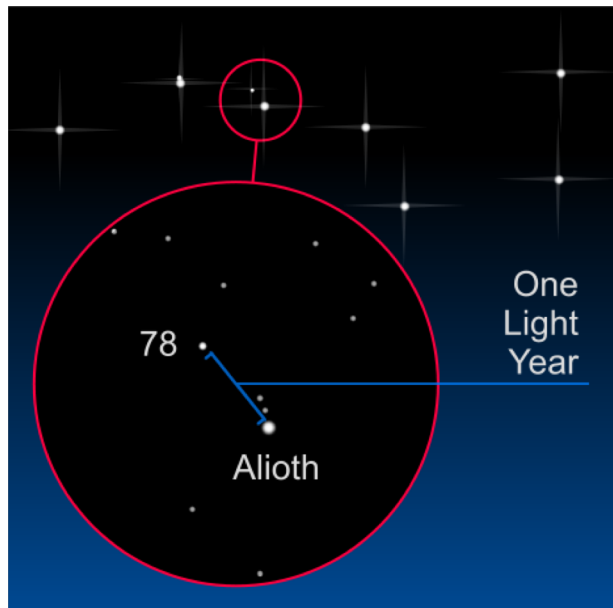
Constellations

- ◆ You might think that constellations are named based on their patterns.
- ◆ While that was once true, modern astronomers define a constellation by its sky coordinates, or its boundaries.
- ◆ They do this so they can know exactly where each constellation begins and ends.



Constellations

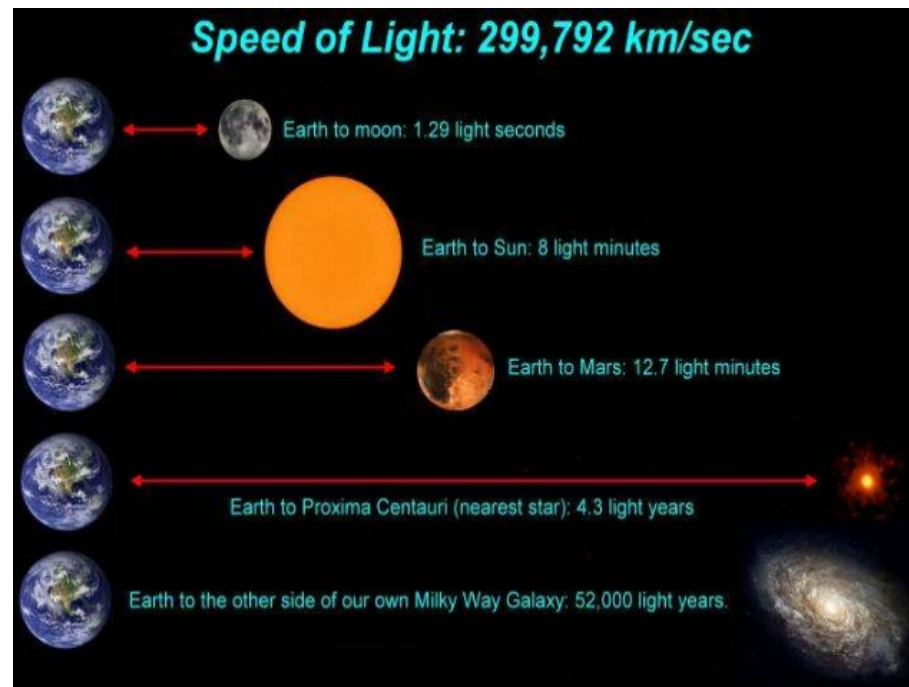
- ♦ Individual stars in constellations are not always close to each other.
- ♦ They just happen to form a group when viewed from Earth.



- ♦ The stars are separated by large distances.
- ♦ Even AU are not large enough to describe these distances, so scientists use light years to describe the distance between stars.

Constellations

- ♦ A light-year is the distance light travels in one Earth year.
- ♦ A light-year (ly) equals about 6 trillion miles.



Well-Known Constellations

- ◆ Name: Bootes
(bo-OH-teez)
- ◆ Location: Northern Hemisphere
- ◆ Meaning in English: Herdsman
- ◆ Description: large, elongated diamond shape; about 36 light years from Earth



Well-Known Constellations



- ♦ Name: Canis Major
- ♦ Location: Northern Hemisphere
- ♦ Meaning in English: Great Dog
- ♦ Description: South of Orion; brightest star is Sirius; two open clusters, one with 50 stars, one with 40 stars

Well-Known Constellations

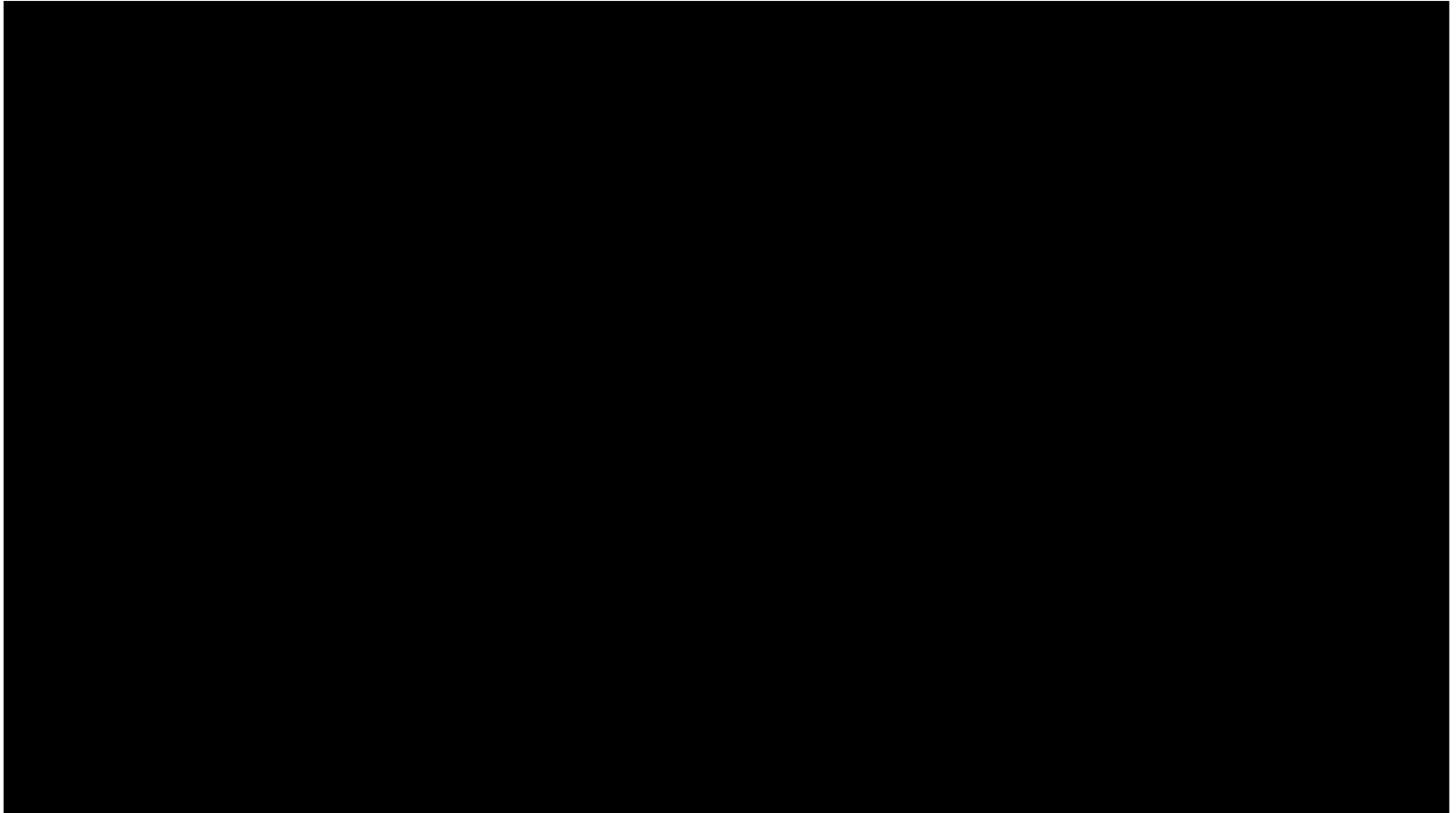


Well-Known Constellations



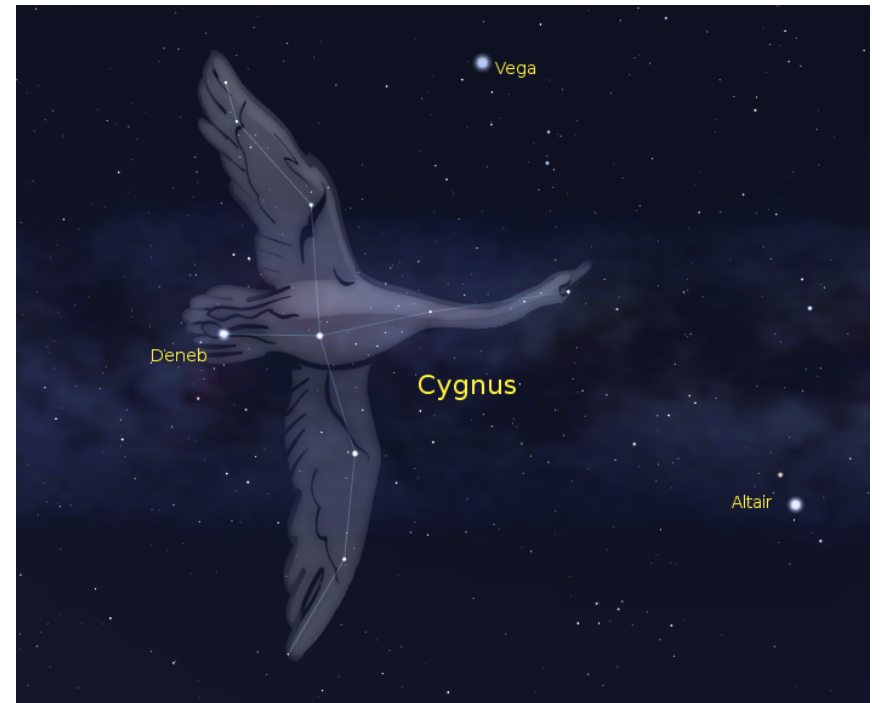
- ♦ Name: Cassiopeia (CASS-ee-uh-PEE-uh)
- ♦ Location: Northern Hemisphere
- ♦ Meaning in English: Seated Queen
- ♦ Description: shaped like W shape in fall and M in spring; formed by 5 stars

Well-Known Constellations



Well-Known Constellations

- ♦ Name: Cygnus (SIG-nus)
- ♦ Location: Northern Hemisphere
- ♦ Meaning in English: Swan
- ♦ Description: Shaped like a large cross; also known as Northern Cross

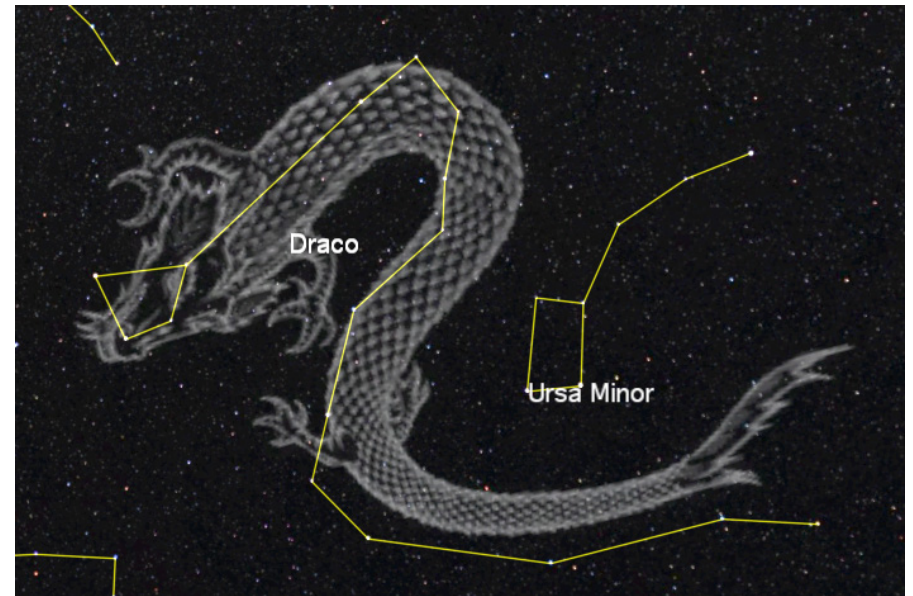


Well-Known Constellations



Well-Known Constellations

- ◆ Name: Draco (DRAY-co)
- ◆ Location: Northern Hemisphere
- ◆ Meaning in English: Dragon
- ◆ Description: old and extensive constellations; once had more stars than today



Well-Known Constellations



- ♦ Name: Leo
- ♦ Location: Northern Hemisphere
- ♦ Meaning in English: Lion
- ♦ Description: has many weak galaxies

Well-Known Constellations

- ♦ Name: Orion
- ♦ Location: Northern Hemisphere



- ♦ Meaning in English: Hunter
- ♦ Description: large number of bright stars in a small area

Well-Known Constellations



Well-Known Constellations

- ◆ Name: Ursa Minor
- ◆ Location: Northern Hemisphere
- ◆ Meaning in English: Little Bear
- ◆ Description: Little Dipper



Well-Known Constellations

- ♦ Name: Uras Major
- ♦ Location: Northern Hemisphere
- ♦ Meaning in English: Great Bear



- ♦ Description: Home of the Big Dipper; third largest constellation

Review

1. What is space?
 - area beyond Earth's atmosphere
2. What are stars?
 - huge glowing balls of gas
3. What is an example of a star?
 - Sun
4. What is a telescope?
 - a long tube with a lens at each end to collect light
5. Who was the first person to use the telescope to look at the sky?
 - Galileo

Review

6. What is a satellite?

- object that orbits another object in space

7. Are satellites natural or man-made?

- Both

8. What was the first space craft launched in space?
Who launched it?

- *Sputnik 1*, the Soviet Union

9. Who were among the first space travelers?

- Yuri Gagarin and John Glenn

Review

10. Who was the first person on the moon?

- Neil Armstrong

11. What are space probes?

- uncrewed vehicles that are used to collect information to send back to Earth

12. Who is included in a solar system family?

- planets and their moons, the dwarf planets and their moons, asteroids, meteoroids, and occasional comets

Review

13. What is an astronomical unit?

- is the average distance from the Sun to Earth

14. How long is one AU?

- ~93 million miles

15. What are the planets in our solar system?

- Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune

16. What are the inner planets?

- first four planets are closest to the Sun: Mercury, Venus, Earth, and Mars

Review

17. What are the outer planets?

- Last four planets are huge and made mostly of gases: Jupiter, Saturn, Uranus, and Neptune

18. What is the asteroid belt?

- a band of asteroids that orbit together between Mars and Jupiter

19. What are asteroids?

- chunks of irregularly shaped rock that orbit the Sun between the inner and outer planets.

Review

20. What are dwarf planets?

- round bodies that orbit the Sun, they share their orbits with other space objects
- Ceres, Pluto, Eris

21. What are comets?

- small bodies made of lumps of rock, metal, and dust covered with ice