

Other Objects In The Solar System (p. 710 - 713)

I. Comets

Halley's Comet;
1835, 1910,
1986, 2061

1. Define the term comet.
Comet - Mixed space object made up of dust + rock particles with frozen water, methane, ammonia that forms in bright coma as it approaches the Sun.

Sedna? →

2. What is the Oort Cloud?
Region of Comets that extends out to more than 1000X the distance between Pluto + the Sun (extends out 50,000 AU)

Demonstration:
Fan blowing on girl's hair

3. What is the Kuiper Belt? (Not in the book.)
Region of comets beyond Neptune's orbit to 100X Earth's distance from the Sun (doughnut-shaped region)

4. What are the three main parts of a comet? (Always points away from Sun)
1. Nucleus 2. Coma 3. Tail (caused by solar winds)



5. What forms a comet's tail?
Gas + Dust → (Photons strike dust particles being evaporated) → (positively-charged ions swept away by solar wind / Typically blue) ← color of sunlight

II. Meteoroids, Meteors, & Meteorites

Iowa Meteor Video 2010

1. Match the following terms with the correct definitions.

- | | |
|-------------------------|---|
| 1. <u>B</u> - Meteoroid | A. A meteoroid that has passed through the atmosphere and hit Earth's surface. |
| 2. <u>C</u> - Meteor | B. A chunk of rock or dust in space. |
| 3. <u>A</u> - Meteorite | C. A streak of light caused by the burning up of a meteoroid in the atmosphere. |

2. How fast can meteors travel?

15 km/s - 70 km/s

3. Where do meteors come from? (1 meteor seen on Earth every 10 minutes)

Comets OR asteroids

4. Why do meteor showers occur on Earth?

Earth moves through orbit of comet/asteroid debris (30 showers/year) (named after constellations in which they occur)

5. What is the name of the meteorite crater impact in Winslow, Arizona that was created 50,000 years ago?

BARRINGER CRATER (meteor crater 1-2 km wide 200 meters deep)

6. What is the significance of the Allende Meteorite? (Not in the book.)

Evidence of a supernova in our vicinity about 4.5 bil yrs. ago (Feb. 8, 1969 → Chihuahua, Mexico)

7. What happened at the Tunguska Event in 1908? (Not in the book.)

Asteroid/meteorite exploded in the air in Tunguska, Siberia on June 30, 1908. (Trees wiped-out 30 km in diameter) Australian crater = 250 mil. yrs. ago

III. Asteroids

"Minor Planets"

1. Define the term asteroid.

Asteroid - piece of rock or metal made up of material similar to that which formed the planets (100,000 discovered)

2. Where is the asteroid belt?

Between the orbits of Mars + Jupiter (Leftovers that never formed a planet → Boda (Jupiter's gravity))

3. What are the names of the four largest asteroids in the asteroid belt?

1. Ceres (585 miles) 2. Pallas (375 miles) 3. Vesta (326 miles) 4. Juno (153 miles)

4. What is the significance of the asteroid Apophis? (Not in the book.)

A 450 meter long asteroid that will miss Earth in 2029, but if passes through a gravitational keyhole, could strike on April 13, 2036

Bugs on windshield →

Meteoroid:

50 miles wide
25,000 mph
20 mega-ton Hydrogen Bombs

Chicxulub Crater: 65 mil yrs ago Fort Dodge Iowa

Gillette Plazzi: Discovered 1st asteroid (Ceres-1801)

Max Wolf (1891) Discovered 228 asteroids

57 known asteroid/satellite systems