

# Chp18 Lect 3, Section 3 Notes: Small Bodies

1pt ec

## Comets

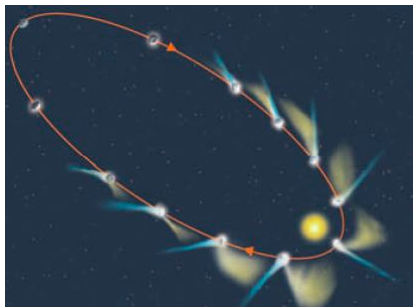
### What is a Comet?

It's a small ball of \_\_\_\_\_, \_\_\_\_\_, & \_\_\_\_\_ that flies through space. Because of their composition, comets are nicknamed "\_\_\_\_\_". Very small. Originate from the cold outer solar system, basically the left over pieces of our solar system.



### Comet Structure

When a comet gets close to the sun, the heat melts some of the ice & forms a long tail. The comet is made out of several parts: the \_\_\_\_\_, \_\_\_\_\_ tail, & \_\_\_\_\_ tail. The ion tail is made of electrically charge particles (ions) that are blown directly away from the sun by the solar wind.

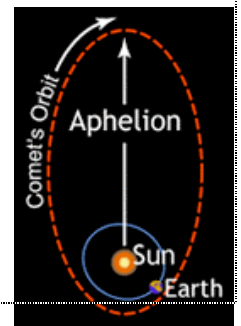
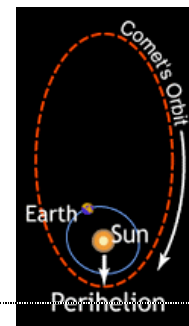


### Comet Orbits

All comet orbits are \_\_\_\_\_, or stretched, narrow circles. They sometimes cross the orbits of several planets on their trip around their sun. A comet's tail always points \_\_\_\_\_ from the sun - because the solar wind is blowing it away.

The point in an orbit closest from the sun is called the \_\_\_\_\_.

The point in an orbit farthest from the sun is called the \_\_\_\_\_.



### Comet Origins

Some scientists think comets come from a region called the \_\_\_\_\_. The Oort Cloud is a huge spherical region that surrounds the entire solar system. It holds millions of small pieces of ice and rock that slowly orbit the Sun.

### Comet Classification

Comets are categorized by the length of one orbit around the sun. There are long-period comets & short-period comets.

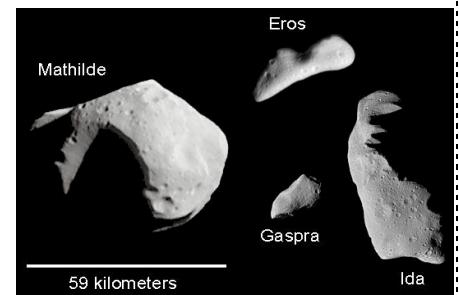
- o Long-period comets usually take \_\_\_\_\_ years to orbit the Sun.
- o Short-period comets make it around in less than 200 years.

Halley's Comet orbits the Sun once every 76 years. Comet Kohoutek has a period of 75,000 years.

## Asteroids

### What is an asteroid?

- Asteroids are small bodies made of \_\_\_\_\_ & \_\_\_\_\_.
- They range in size from a few meters to more than 900 km in diameter - too small to be a planet.
- Most asteroids are located in the asteroid belt, between Mars & Jupiter.
- Some asteroids that orbit planets are considered moons.
- Some astronomers consider asteroids to be minor planets.



### Asteroid Structure

- Asteroids have \_\_\_\_\_, \_\_\_\_\_, although some of the larger ones are spherical.
- Using an infrared sensor, asteroids are classified as light or dark.
- The lighter ones contain more \_\_\_\_\_ than the darker ones.

### Special Asteroids

- The largest asteroid in the asteroid belt is called \_\_\_\_\_.
- It is 580 miles across - the size of Texas, & is considered a dwarf planet.
- Then there's Ida, the first asteroid discovered to have it's own \_\_\_\_\_, Dactyl.
- Both are heavily cratered by impacts with smaller asteroids & comets.
- Ida is about 56 km long & Dactyl is about 1.5 km.

### Hitting the Earth?

Chances are the Earth doesn't have to worry about a collision with a comet. Asteroids are another matter. Scientists already think that a large asteroid may have hit the Earth when the dinosaurs were alive - about 65 million years ago. That collision may have changed the atmosphere by sending debris into the air, blocking the sun's light for days and days. No light meant no plants, which meant no more dinosaurs. Scientists believe this occurred at the tip of the \_\_\_\_\_ peninsula in Mexico. If you look at the topographical map, you can see a huge crater which goes into the ocean floor. Imagine what this would have been like to see!

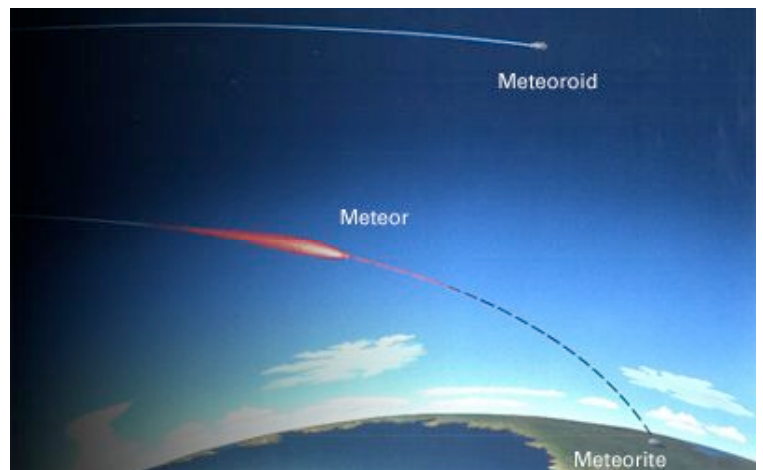
There may come a day when one of those asteroids drops out of orbit (maybe from a collision with another asteroid) & heads toward Earth. If it is small enough, it will burn up in the atmosphere. Larger ones (over 10 km across) will hit the surface of the planet. Hundreds of millions of years ago, collisions with asteroids happened more often. Over time, the number of asteroids in the path of the Earth decreased & collisions became less frequent. Scientists are currently tracking asteroids, to make sure no serious collisions occur.

## Meteoroids

A meteoroid is a rocky object that orbits the sun. They are similar to \_\_\_\_\_ but are much \_\_\_\_\_. Most meteoroids are probably chunks of asteroid or comets that have broken off.

## Meteors

As the meteoroid travels through the atmosphere, it becomes a \_\_\_\_\_. As the meteor travels through the atmosphere, it heats up to more than, 2,000°C. The intense heat vaporizes the meteor, creating a streak of light called a "\_\_\_\_\_". Sometimes, larger meteors cause a brighter flash called a fireball. On average, a meteor can be seen in the night sky about every 10 minutes.



## Meteor Showers

When a comet nears the sun, a trail of dust & debris burns off & remains in orbit around the sun. As earth orbits the sun, it passes through the debris, causing a \_\_\_\_\_ as the small bits of dust burn up in the atmosphere. During a meteor shower, you can see hundreds of meteors! We can predict meteor showers because we know when the Earth passes through a comet's path.

## Meteorites

If a meteor is big enough to make it through the atmosphere & \_\_\_\_\_ the Earth's \_\_\_\_\_, it is called a meteorite. We think meteorites are fragments from collisions involving asteroids. Most meteorites weigh only a few pounds & cause little damage. But sometimes, BIG meteorites can leave BIG craters. The moon & Mercury have many more impact craters than Earth or Mars because neither, the moon or Mercury, have a thick atmosphere to protect the surface from these impacts. The easiest place in the world to find meteorites is in \_\_\_\_\_. Contrary to popular belief, there is very LITTLE snow fall there, & the snow never completely melts. So all you have to do to find them is walk out on a glacier & pick up rocks!