S6E1.f. Compare and contrast comets, asteroids, and meteors

What are the characteristics of comets, asteroids, and meteors?
How are they alike/different?
Comets

A small body made of ice, dust, & rock that orbits our sun

ORIGIN:

• Left over from formation of solar system
• Kuiper Belt &
• Oort Cloud
Size of Comets

- Relatively small
- About the size of a mountain (w/out the tail)
Appearance of Comets

- Made of ice, dust, & small rocky particles
- With a tail that can be $\geq 100$ million km
Parts/Vocabulary for Comets:

- **Coma** – cloud of dust & gas
- **Nucleus** – solid inner core
- **Tail** – gas & dust can be seen as the sun heats the comet & blows it away from the sun
Comet's tail ALWAYS points away from the Sun.

Tails get longer the closer a comet gets to the Sun.

Tails are always directed away from the Sun. Gas (ion) tail points straight away from the Sun. Dust tail curves toward orbital path.

Orbit of comet
Other details about Comets:

- A.K.A. “Dirty Snowballs”
- Comet means “Long-haired star”
Other details about Comets:

Comets orbit in long, narrow, elliptical paths around the Sun.
Asteroids

A small body of rock and metal that orbits the sun.

ORIGIN:

- Left over from the formation of the solar system
Size of Asteroids

- Vary greatly
- From 10M - 100’s of Km’s
Appearance of Asteroids

- Similar to comets but without the tail
- Rocky
Other details about asteroids

• Scientists believe asteroids may have caused the extinction of the dinosaurs
Other details about asteroids

- Asteroids move in very elliptical orbits
- The largest are Ceres, Pallas, Juno & Vesta
Meteors, Meteorites, Meteoroids
Definitions

• **Meteoroid** – Chunk of rock/dust in SPACE

• **Meteor** – Streak of light made by meteoroid, burn up as they enter Earth’s ATMOSPHERE

• **Meteorite** – a meteoroid that hits Earth’s SURFACE
Size

- Smaller than comets or asteroids

(since they come from broken pieces of these!)

The Perseid Meteor Shower (happens every August) which has been observed for 2000 years!
Appearance

• What are meteors made of?
  • Rocky particles
  • Meteorites = bright “Shooting Stars”
• Come from particles in our solar system. Often broken comets and asteroids.
Other details about meteors

- A.K.A. “Shooting Stars”

- Meteor Showers happen regularly