



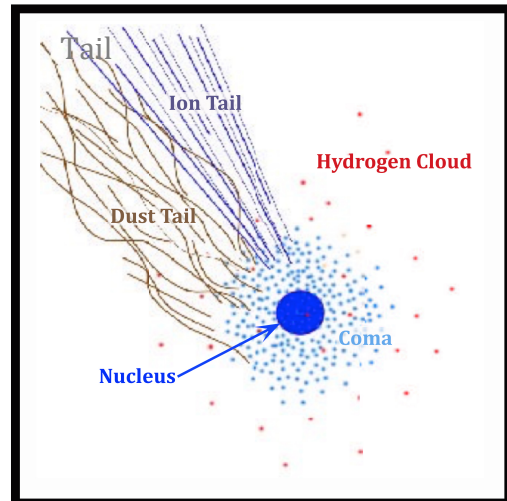
Parts of a Comet

- **Nucleus** The nucleus is the solid mass of a comet. It is sometimes called a **dirty snowball**. It's made of about 85% water ice, with frozen carbon dioxide, carbon monoxide, methane, ammonia, dirt, and dust. Nucleus sizes average from 1 km (.6 miles) to 20 km (12 miles) in diameter. Halley's Comet's nucleus was about 10 km (6 miles) in diameter. When comets are far from the Sun, the nucleus is all that exists; the coma and tail only form when the comet is close to the Sun.

- **Coma** The large cloud of gas that sublimates from the snowball due to heat from the Sun. It's sometimes referred to as a **fog bank** that surrounds the **dirty snowball**. The coma can reach a diameter of 200,000 km (124,000 miles), larger than the size of Jupiter.

- **Hydrogen Cloud** An even larger and more tenuous cloud that surrounds the coma, made of light hydrogen gas. This often is larger in volume than the size of the Sun.

- **Tail** The tail of the comet is simply the gases and dust of the coma being pushed back by the pressure of sunlight. The tail therefore does not drag behind – it points away from the Sun. The tail is the longest when the comet is closest to the Sun. Comet tails can be as long as 100 million miles, that's greater than the distance between Earth and the Sun. The tail has two parts:

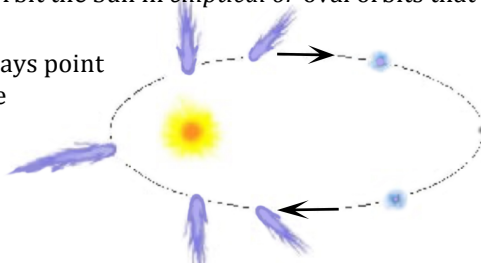


- **Ion Tail** This part of the tail is made of ionized (*electrically charged*) gases. These gases are ionized because they have lost electrons due to interaction with the solar energy. The ion tail is pushed back away from the Sun by the solar wind.

- **Dust Tail** This part of the tail is made of dust particles released from the ice of the snowball as the ice sublimates (*turns directly from a solid to a gas*) into the coma. The dust tail shines by reflected light and lags behind more than the ion tail as the dust is left behind.

- **Comet Orbits** Comets orbit the Sun in *elliptical or oval* orbits that take them far from the Sun.

Comets have tails that always point away from the Sun and are longest when closest to the Sun.



When comets are far from the sun they have no tails and are composed of simply the nucleus.



Label the Parts of a Comet

Can you label the parts of a comet? Please give both the scientific name and the common name—if there is one.

Here are the parts both scientific names and common names, put them where they belong on the diagram below.

Scientific Names	Common Names
Coma	
Dust Tail	Dirty Snowball
Hydrogen Cloud	Fog Bank
Ion Tail	Gas Tail
Nucleus	

