



Comets are small icy objects that remain hard to see until their orbits bring them near the Sun, where its warmth melts the comet's outer layers. This causes it to release lots of gases which are visible from Earth. Scientists are then able to study their several distinct parts.

The three main parts of a comet are: **Nucleus**: This is a comet's solid "center." It's made mostly of frozen water and other gases mixed with dust.

Coma: This is a cloud of dust and water, carbon dioxide and other gases that surround the comet's nucleus.

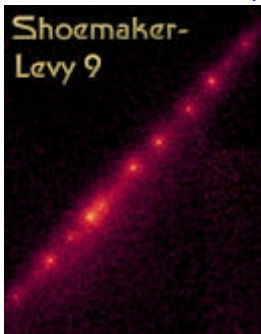
Tail: This is a long (up to 10 million km long!) stream composed of gas and smoke-sized dust particles that are blown off of the nucleus by escaping gases. The tail is the part we usually associate with comets as it's the feature we can see with our naked eye.

Many comets are first discovered by amateur astronomers - like Comet Hyakutake.



Scientists believe that comets may be material that for some reason didn't become part of a planet when the solar system was formed. This makes them very interesting as samples of the early history of the solar system.

Each time a comet passes by the Sun it loses some of its ice and gases. After about 500 passes near the Sun, most of a comet's ice and gas are lost, leaving a rocky object very similar to an asteroid in appearance. A comet whose orbit takes it near the Sun is also likely to either impact one of the planets or the Sun. Comet Shoemaker-Levy did just that (with Jupiter) in 1994.



Meteor showers sometime occur when the Earth passes through the orbit of a comet. Some occur with great regularity: the **Perseid meteor shower** occurs every year between August 9 and 13 when the Earth passes through the orbit of **Comet Swift-Tuttle**.

Comet Halley is the source of the **Orionid shower** in October.



Since comets are brightest when near the Sun, they are usually visible only at sunrise or sunset.

~ Comets have been known since ancient times. There are Chinese records of Comet Halley going back to at least 240 BC.

~ Comets are made up of dust and ice. For this reason, comets are sometimes called "dirty snowballs" or "icy mudballs".

~ Most comets have orbits which take them far beyond the orbit of Pluto. These types of comets are seen once and then disappear for a thousand years!

~ By far the most famous comet is Comet Halley but Shoemaker-Levy 9 gained lots of attention for a week in the summer of 1994.

~ As of 1995, scientists have catalogued 878 comets.