

### Parts of a Comet

1. **Nucleus:** usually solid and stable made up of mainly ice and gas along with traces of dust and other solids
2. **Coma:** dense cloud of water, carbon dioxide, and other neutral gases that have been "shed" from nucleus
3. **Hydrogen Cloud:** coma of neutral hydrogen (very large but sparse)
4. **Dust Tail:** made up of dust-particles that have been driven off the nucleus - part that is usually seen by naked eye (up to 10 million km long)
5. **Ion Tail:** made up of plasma with rays and streamers from solar winds

### Bibliography

- [Weatherfriend](#)
- [NinePlanets](#)
- [Windows](#)

Halley's Comet

# Halley's Comet



The end of a comet is called the tail and Earth can pass through many comets's tails unharmed, which proves that they do no harm to Earth. Comets are very small and often known as "dirty ice balls" because they are made up mostly of frozen materials. The main nucleus is made up of rocks held together by frozen materials such as methane, ammonia, carbon dioxide, and water. Surrounding the nucleus is the coma, which is made up of gas and/or dust. Comets are made visible by the sun lighting up the coma. When the comet nears the sun, the radiation pressure of sunlight combined with the solar wind makes the dust and gas fly off of the coma creating a tail. If a comet is too far away from the sun, then it will not have a tail. All these different components combine to create a spectacular show also known as comets.

Every comet is made up of these sections and these may be found orbiting around the planets. Most comets have an elliptical orbit but this can vary from comet to comet. This interactive diagram depicts this orbit very well: [http://www.windows.ucar.edu/tour/link=/comets/comet\\_model\\_interactive.html&edu=high](http://www.windows.ucar.edu/tour/link=/comets/comet_model_interactive.html&edu=high). This orbit can take a very long time to complete which is why comets often return after a matter of years.

Edmond Halley lived from 1656 to 1742. When he was seventeen he went to Queen's College Oxford to be an astronomer. While there, he hypothesized something about Mars by the Moon on August 21, 1676. There he tried to determine the distance of the sun and scale of the solar system. He did this by using Kepler's third law. In 1678 he returned to England and published a catalogue on the stars of the southern hemisphere. Although he had not yet graduated from college, he was already known as one of the top astronomers. By 1695, Halley was studying the orbit of comets. Sir Isaac Newton believed that comets have parabolic orbits but Halley disagreed. He thought that there may be orbits that could be predicted. Using this theory, he calculated the comet that came in 1662. He then realized that this comet was the same comet that came in 1531 and 1607. He also found out that these same sightings were in fact the same comet as the ones sighted in 1305, 1380, and 1456. After this data, he was able to predict that the comet would come again in December of 1758. Although Halley died almost 20 years prior to this event, he became widely known for his predictions and there is now a comet named after him, which is Halley's Comet.

Halley's Comet is one of the most famous comets in today's world. It has been studied by many astronomers and scientists today. Spacecraft Giotto has taken close up pictures of Halley's nucleus showing it to be a peanut shaped nucleus with the longest dimension of 10 miles. Astronomers have also predicted that short-period comets such as Halley's comet and Comet Swift-Tuttle derive from the Kuiper belt. The Kuiper belt is a "donut-shaped" region from 30-100 AU. In a recent appearance of Comet Halley there has been a great discovery made. Comet Halley had a very dim and almost disappearing coma before an outburst that brightened it for many years to come. Astronomers believe that this outburst was caused by vaporized frozen material (likely carbon dioxide) that burst through a vent in the comet's crust. Comet Halley has been discovered, watched, and will continue to amaze into the future. The next appearance is said to be in 2061. Stay around and take a look!

