



# Ten Important Comet Facts



Created for Deep Impact Mission, A NASA Discovery Mission  
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1. Comets are in orbit around the Sun as are our planets.
2. Comets are composed of ices, dust and rocky debris carried from the early formation of the solar system about 4.5 billion years ago.
3. Comets are remnants from the cold, outer regions of the solar system. They are generally thought to come from two areas - the Oort Cloud and the Kuiper Belt. Both of these are areas where materials left over from the formation of our solar system have condensed into icy objects. Both regions extend beyond the orbits of Neptune and Pluto but are still part of our solar system and much closer to us than the closest star.
4. Comet orbits are elliptical. It brings them close to the sun and takes them far away.
5. Short period comets orbit the Sun every 20 years or less. Long period comets orbit the Sun every 200 years or longer. Those comets with orbits in between are called Halley-type comets.
6. Comets have three parts: the nucleus, the coma and the tails. The nucleus is the solid center component made of ice, gas and rocky debris. The coma is the gas and dust atmosphere around the nucleus, which results when heat from the Sun warms the surface of the nucleus so that gas and dust spew forth in all directions and are driven from the comet's surface. The tails are formed when energy from the Sun turns the coma so that it flows around the nucleus and forms a fanned out tail behind it extending millions of miles through space.
7. We see a comet's coma and tail because sunlight reflects off the dust (in the coma and dust tail) and because the energy from the Sun excites some molecules so that they glow and form a bluish tail called an ion tail and a yellow one made of neutral sodium atoms.
8. Scientists have seen comets range in size from less than 1 km diameter to as much as 300 km, although the 300km (called Chiron) does not travel into the inner solar

system.

9. We know a comet could impact Earth and that it is important to understand the nature of comets so we can design better methods to protect ourselves from them should one be on a collision path with Earth.
10. A comet nucleus has a dark, sometimes mottled surface but we don't know if it has an outer crust or if it is layered inside. We don't really know what comets are like beneath their surface and that's why we need a mission like [Deep Impact](#).