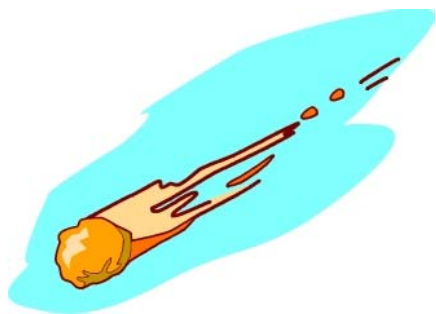


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Comets and Asteroids: Cosmic Wanderers of the Night Sky

Have you ever looked up at the night sky and wondered about those bright objects that sometimes streak across it? Some of them are comets, and others are asteroids, but what's the difference between them? Let's explore these cosmic wanderers in detail to understand how they differ.

Comets

Comets are like the cosmic snowballs of the universe. They consist of a core made of dust, rock, and ices like water, methane, and ammonia. The core is usually small, only a few kilometers wide, but it's surrounded by a glowing cloud called a coma, which can be enormous. This coma is created when the heat of the Sun causes the ices in the core to turn into gas, releasing dust and creating a bright halo around the nucleus.

One of the most distinctive features of comets is their long, glowing tail. This tail always points away from the Sun and can extend for millions of kilometers into space. It is formed as the solar wind and radiation push the coma's particles away from the Sun. The tail can be seen from Earth when the comet gets close enough to our planet during its orbit around the Sun.

Comets are often referred to as "dirty snowballs" because of their icy and dusty composition. They come from the distant regions of our solar system, like the Kuiper Belt and the Oort Cloud, and their orbits can be highly elliptical, taking them far away from the Sun and then back again in long periods, sometimes hundreds or thousands of years.

Asteroids

Asteroids, on the other hand, are rocky and metallic objects that orbit the Sun, similar to planets, but much smaller. They can vary in size from a few meters to



Name _____

hundreds of kilometers across. Unlike comets, asteroids do not have a glowing coma or tail because they are composed mainly of solid materials.

Asteroids are often found in the asteroid belt, a region between the orbits of Mars and Jupiter, but they can also be found in other parts of the solar system. These rocky objects are remnants from the early formation of our solar system, and their compositions can vary greatly. Some may contain metals like iron, while others are more like stony rocks.

Differences between Comets and Asteroids

Now that we've learned about comets and asteroids, let's highlight some key differences between them:

- **Composition:** Comets are made up of dust, rock, and ices, while asteroids are primarily rocky and metallic.
- **Appearance:** Comets have a bright, glowing coma and a tail when they approach the Sun, while asteroids do not exhibit these features.
- **Orbit:** Comets often have highly elliptical orbits that take them far from the Sun and then close to it, while asteroids have more regular orbits within the asteroid belt or other regions.
- **Size:** Asteroids can vary in size from a few meters to hundreds of kilometers, whereas comets generally have smaller nuclei, only a few kilometers wide.
- **Location:** Comets come from the distant regions of the Kuiper Belt and the Oort Cloud, while asteroids are found in various locations within the solar system.

