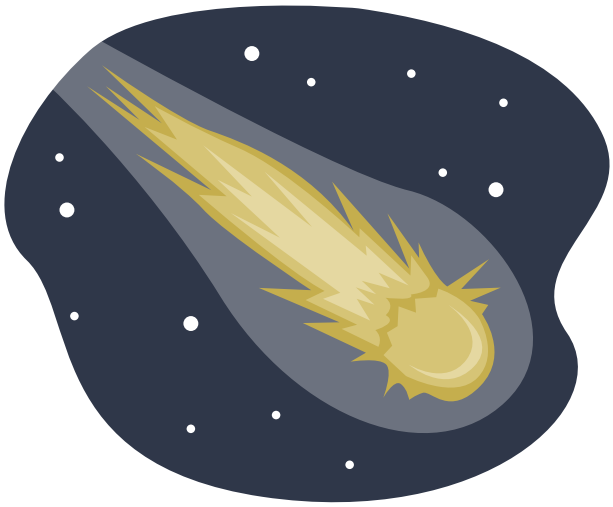
Comet vs. Asteroid



A **comet** is a *small solar system body*. They can be as small as 100 meters or as big as 40 kilometers across. They have such low mass that they do not become spherical, or round. Most comets have *elliptical orbits* around the sun. Some comets have 200-year orbits, and others take millions of years to complete on orbit.

Comets are distinguised by their *coma* and their *tail*. A *coma* is a thin, fuzzy atmosphere that surrounds the center of the comet. Like comets, comas are made up of ice and dust. They form when a comet passes close to the sun. A *tail* is the trails of gas and dust that a comet leaves behind as it passes through the solar system. These trails usually leave behind solid debris of dust particles.

Comet Vocabulary

small solar system body: an object in the solar system that is not a planet, dwarf planet or satellite of a planet or dwarf planet.
coma: a thin, fuzzy atmosphere that surrounds the center of the comet.
tail: the trails of gas and dust that a comet leaves behind as it passes through the solar system.

An asteroid is a small rocky body that orbits the sun. Asteroids are sometimes referred to as minor planets. Asteroids are made up of carbon, rocks, and metals. Most asteroids in our solar system have orbits that lie between Mars and Jupiter. Unlike comets, asteroids do not have a coma or a tail.

The biggest recorded asteroid is called Ceres. Ceres is 1,000 kilometers across and roughly a quarter the size of our moon.

Asteroid Vocabulary

minor planet: a celestrial body that moves around the sun and is not considered large enough to be a planet.
celestial body: a natural object that is visible in the sky.

Reading Comprehension

1. What is the main idea of the passage in page 1?

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2. What are the differences between a comet and an asteroid? What are the similarities?

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3. In outer space there is no air resistance; all objects in motion will stay in motion. With that in mind, what do you think causes comets and asteroids to move?

True or False? For questions that you mark false, re-write the statement so that it is true.

1. An asteroid has a tail. ..... **True** ☐ **False** ☐
2. A comet has an orbit. ..... **True** ☐ **False** ☐
3. The coma is just an optical illusion. ..... **True** ☐ **False** ☐
4. Some asteroids can be as big as our moon. ..... **True** ☐ **False** ☐
5. A small solar system body is not a planet. ..... **True** ☐ **False** ☐
6. Comets are not round. ..... **True** ☐ **False** ☐

Reading Comprehension

1. What is the main idea of the passage in page 1?

The main idea of the passage is to define what a comet is and what and asteroid is, especially noting the differences between the two.

2. What are the differences between a comet and an asteroid? What are the similarities?

The main difference between comets and asteroids is that comets have a coma and tail, and asteroids do not. Both comets and asteroids are rocky outer space bodies. They both orbit the sun, and they both are too small to become round and spherical like planets.

3. In outer space there is no air resistance; all objects in motion will stay in motion. With that in mind, what do you think causes comets and asteroids to move?

Comets and asteroids start to move when they are first formed; they can be formed from other big space objects colliding, or from the collapse of space giants. Eventually, gravity from the sun pulls them into orbit and they continue that way until they hit something.

True or False? For questions that you mark false, re-write the statement so that it is true.

1. An asteroid has a tail. Asteroids do not have tails. **True** ☐ **False** ☒
2. A comet has an orbit. **True** ☒ **False** ☐
3. The coma is just an optical illusion. **True** ☐ **False** ☒
   The coma is a thin atmosphere around a comet.
4. Some asteroids can be as big as our moon. **True** ☐ **False** ☒
   The largest known asteroid is 1/4 the size of the moon.
5. A small solar system body is not a planet. **True** ☒ **False** ☐
6. Comets are not round. **True** ☒ **False** ☐