

## METEORS

To understand meteors, one must also understand meteoroids and meteorites. First, a meteoroid is a particle in the solar system. The meteoroid may be as small as a grain of sand, or, as large as a boulder. When the meteoroid enters the Earth's atmosphere, and becomes visible as a shooting star, it is called a meteor. If the meteor makes it to the ground, it is called a meteorite.

Meteors, also called shooting stars, occur in the Earth's mesosphere at an altitude of about 40--60 miles. Millions of meteors enter the Earth's atmosphere every day, though the vast majority are observed at night. Their visibility in the night sky is due to air friction which causes the meteor to glow and emit a trail of gasses and melted particles that lasts for about a second. Meteor showers are relatively common events that occur when the Earth passes through a trail of debris left by a comet.

Sometimes Meteoroids make it throughout the atmosphere and hit the ground, where they are referred to as meteorites. There are over 31,000 documented meteorites that have been found, although only five or six new ones are found every year. The largest meteorite ever found was in the African nation of Namibia. It weighs over 100 tons and left a huge impact crater in the ground. Scientists believe the massive Berringer Crater in Arizona was formed when a 300,000 ton meteorite crashed to the ground over 49,000 years ago. On November 30, 1954, the Hodges Meteorite (actually a fragment of a meteorite) crashed through the roof of the residence of Ann Hodges in the town of Sylacauga, Alabama. It bounced off a table before striking her in the leg. Although she was badly bruised, she was not seriously injured. It was the first recorded instance of a meteorite injuring a human. The actual meteorite was donated to the Alabama Museum of Natural History after various legal battles concerning ownership. Some scientists believe the impact of a large meteorite from an asteroid or comet in Mexico's Yucatan Peninsula was responsible for the extinction of dinosaurs some 65 million years ago. Such an impact would have had catastrophic global consequences including immediate climate change, numerous earthquakes, volcano eruptions, wildfires, and massive supertsunamis, along with the proliferation of massive amounts of dust and debris that would block solar energy and lead to a disruption in photosynthesis.

Most meteorites that reach the Earth are classified as chondrites or achondrites, while a small percentage are iron meteorites and stony--iron meteorites. Most meteorites are chondrites. Chondrites contain silicate materials that were melted in space, amino acids, and other presolar grains, particles likely formed from stellar explosions. Diamond and graphite are among materials found to be present in these grains. Chondrites are thought to be over 4.5 billion years of age and to have originated in the asteroid belt, where they never formed larger bodies. Achondrites are less common. These types of meteorites seem to be similar to igneous rock. Iron meteorites make up less than five percent of meteorite finds. These types of meteorites are thought to come from the core of asteroids that were once molten. Finally, stony--iron meteorites constitute less than one percent of all meteorite falls. They are made of iron--nickel metal and different silicates.

1. A meteor shower occurs when the Earth passes through\_\_\_\_\_.
  - A. the asteroid belt
  - B. a solar flare
  - C. a trail of debris left by a comet
  - D. a meteoroid
2. Which of the following actually hits the ground?
  - A. meteor
  - B. meteorite
  - C. meteoroid
3. Chondrites are thought to have originated in \_\_\_\_\_.
  - A. the outer reaches of the Milky Way.
  - B. the asteroid belt
  - C. Earth's atmosphere
  - D. the Oort Cloud
4. \_\_\_\_\_ meteorites are found every year.
  - A. Numerous
  - B. No
  - C. Very few
  - D. Thousands of
5. Most meteorites are \_\_\_\_\_.
  - A. iron
  - B. stony--iron
  - C. achondrites
  - D. chondrites
6. Which kind of meteorite is the least common?
  - A. Chondrites
  - B. Stony-iron meteorites
  - C. Iron Meteorites
  - D. Achondrites
7. Another name for a shooting star is a \_\_\_\_\_.
  - A. meteorite
  - B. meteor
  - C. meteoroid
8. Which of the following was not (possibly) caused by a meteorite impact?
  - A. A slight injury to Ann Hodges
  - B. The Berringer Crater
  - C. The formation of the Yucatan Peninsula
  - D. The extinction of the dinosaurs
9. \_\_\_\_\_ of meteors enter the Earth's atmosphere every day.
  - A. Thousands
  - B. Few
  - C. Millions
  - D. Hundreds
10. The largest meteorite ever discovered landed in \_\_\_\_\_.
  - A. Africa
  - B. The United States
  - C. Alabama
  - D. Mexico

