Asteroids and Comets

Asteroids and comets are small lumps of rocks, ice and dust which travel around our solar system.

Although they are small they are pretty interesting and can lead to some big exciting events to occur. So what's is the differences between an asteroid and a comet and how do meteors and meteorites come into it?

Watch this video and use our handy guide to tell the difference!

Image Credit: NASA

Asteroids: These are lumps of rock, a little like tiny planets which were left over when the solar system was made about 4.6 billion years ago. Most of these orbit the Sun between Mars and Jupiter in the asteroid belt. Scientists have found over a million asteroids so far!

This is a picture from NASA of an asteroid called Vesta.

Image Credit: NASA

Comets: These are basically dirty space snowballs! They are lumps of rocks, dust and ice which were left over from the formation of the solar system. When comets get close to the Sun the ice starts to melt and this makes the comet's tail! Scientists have found over 3000 comets in our solar system so far but there are probably millions of them!
This is a photo of a commet called ISON taken by NASA's Marshall Space Flight Center in 2017. It later got too close to the Sun and broke up completely.

Meteors/ Meteorites: When some dust or a rock from an asteroid enters the Earth's atmosphere (the bubble of air around our planet) it gets called a Meteor. They are sometimes better known as shooting stars and if you have ever been star gazing you might have been lucky enough to see one. The bright light is because as the dust or rock travels through the atmosphere it burns up! If this rock makes it all the way down to the surface of the earth we call this a meteorite. It's the same rock but it just gets a new name once it has landed on Earth!

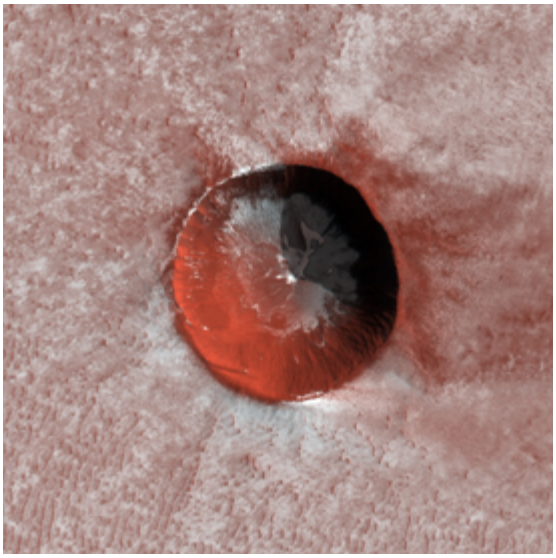
What happens when meteorites hit the ground?

Most meteorites which hit the Earth are really tiny specks of dust or very small rocks, but when something bigger hits a planet or moon it leaves a mark behind called a **crater**.

These are pretty hard to see on Earth because plants grow and cover them up or they get worn away by weather, but they can be much easier to see on the moon and the other rocky planets.

You can see craters on the moon without binoculars or a telescope.

Image credit NASA

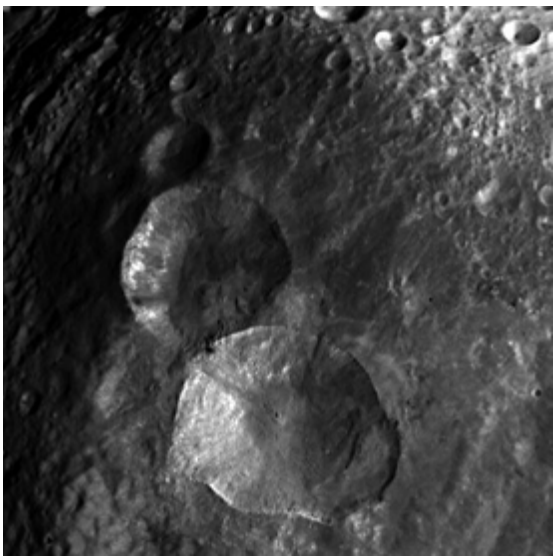


Mars has ice filled craters at its poles.

Image credit NASA

The surface of the dwarf planet Ceres is covered in craters.

Image credit NASA



Even the surface of asteroids can have craters on them. This is the snowman crater on Vesta.

Image credit NASA

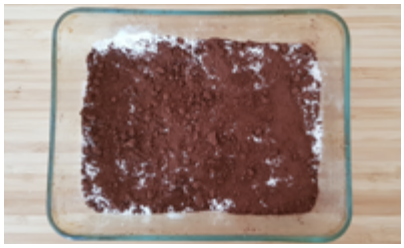
Make your own craters

What you need:

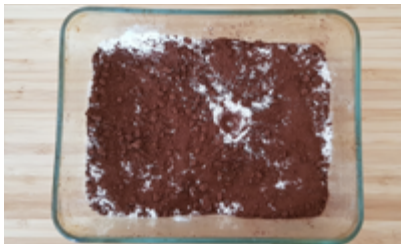
- A wide deep tray or dish
- Flour
- Cocoa powder
- A small object to drop as your meteorite (marble, small stone, ball of blutack)

What to do

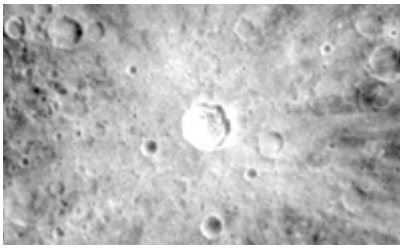
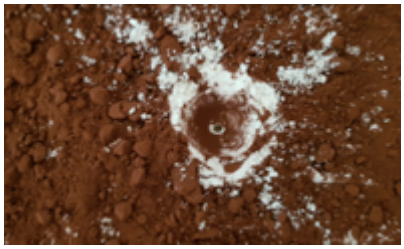
1. Sprinkle the flour into your dish to make a layer about 2cm deep. Don't push the flour down.
2. Sprinkle a layer of cocoa powder on top until the flour is completely covered.

3. Drop your 'meteorite' into your dish and then gently remove it. You should now see your crater.

4. See if you can spot these features on your crater.
   The rim: High edges forced up by the impact of the meteorite
   Ejecta: dust thrown out from underneath the surface (this will be your white flour)

5. Experiment with how high your meteorite falls from or what happens if it hits the surface at an angle.