

This activity has been adapted from Mission X, which is a worldwide educational initiative supported by ESA and the national space agencies of several countries including the UK to encourage healthy and active lifestyles among children.

Activity Mission X: Create a planetscape

TIME NEEDED **20** minutes



This activity can be used to introduce requirement 1

DID YOU KNOW?

Meteorites are parts of asteroids that have broken apart and survived the journey through space until they are caught by a planet's gravity. Asteroids are small, rocky objects that orbit the sun. Although they orbit the sun like planets, they are much smaller. Most asteroids come from the asteroid belt between Jupiter and Mars.

Many meteorites have come into contact with Earth. When this happens it gives us an opportunity to study the rocks and gain insight into the age and birth of our solar system. Some of the rocks that land on Earth have been proved to come from the moon and Mars. Also, the craters formed by the impact of meteorites provide insight into the age and geology of a planet's surface.

The largest meteorite to impact Earth is called the Hoba Iron Meteorite of Southern Africa – it measures 10 metres across and weighs 60 tonnes.

You will need:

- sand or flour
- cocoa powder
- multiple trays
- a sieve
- different sized round objects to act as meteorites (eg marbles, a golf ball, rocks)
- metre ruler/tape measure to measure the height drop of the meteorite
- small ruler to measure the size of craters



Instructions:

1. Ask your Scouts to carefully pour the sand or flour into the tray about 4cm deep.
2. Next ask them to use the sieve to add a thin layer of cocoa powder over the sand/flour – this provides a contrast to make it easier to see the impact of the object and the crater created.
3. Next get your Scouts to take turns carefully dropping an object onto the tray to make their very own craters. Dropping it from different heights will create different sized craters.
4. Use the meter ruler to measure the height at which they drop the objects; then use the smaller ruler to measure the size of the craters they make. Compare the difference in drop height and crater size
5. Repeat 3 and 4 using different sized objects of different weights – what difference does that make to craters formed?

Tips for leaders:

Get your Scouts to think about the impact in terms of width and depth of the craters created.

A heavy object will produce a deeper crater.

A small but heavier object will create a deep, relatively narrow crater.

A big but lighter object will create a shallower, wider crater.

Going further!

Cake decorating

Ask the Scouts to make and decorate a cake – ask them to decide what cake decorations/icing they would use to make the cake's surface look like a planet with craters.

