

Making Moon Craters

Estimated Time: 30 minutes

SUMMARY

Craters on the moon are visible from Earth. We can learn a lot about how the moon was impacted and what kind of objects collided with it by looking at and recreating these craters. Try this messy activity to create craters and analyze how they compare with craters on the moon.

WHAT YOU'LL LEARN

- The shape of impact craters can be changed by the weight, velocity, and distance of a meteorite
- Commonly used words to describe the craters on Earth and the moon

<p>Materials Used</p> <ul style="list-style-type: none"> • Flour • Cocoa • Sifter or shaker (optional) • Small sheet of foil (about 6 in long) crumpled into a ball • Marble or ball bearing • Tennis ball or similar sized rubber ball • Meter stick or measuring tape • Ruler • Paper • Pencil • Baking dish or large plastic tub 	<p>Helpful Links</p> <ul style="list-style-type: none"> • https://spaceplace.nasa.gov/craters/en/ Why craters on the moon look different than craters on the Earth • https://www.lpi.usra.edu/education/exploration/shaping_the_planets/impact-cratering/ This page has terms that describe the shape, impact, and parts of craters • https://planetarynames.wr.usgs.gov/SearchResults?target=MOON&featureType=Crater,%20craters Names of the craters on the moon
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WHAT TO DO

1. Find an area that can be easily cleaned. You can set down newspapers or a tablecloth to help control the mess.
2. Put enough flour in your container to cover the bottom, about 2 inches. Dust the cocoa over the surface evenly so it covers the entire pan, but the cocoa does not need to be thick. It is better to have a thin layer of cocoa. This represents the top layer of soil on the surface of the moon.
3. Craters are the evidence of impact events. They are usually circular or roughly circular. The circle is actually made from debris flying off at the point of impact, not because the meteorite is circular. Meteorites are rarely evenly shaped or perfectly circular. The item hitting the surface is referred to as the impactor and the material sprayed out on impact is called the ejecta.
4. Use your tape measure or meter stick to measure a distance from the pan—it can be any distance, but it has to be consistent. Pick your first object to drop.
5. Carefully drop your object. Don't throw it.

6. Use your ruler and measure the size of the crater you created. Write down the item you dropped, the height from which you dropped it, and draw a picture of what the crater looked like.
7. Look at the referenced website, https://www.lpi.usra.edu/education/explore/shaping_the_planets/impact-cratering/ and label the parts of your crater!
8. Repeat as much as you can. To reset your lunar surface just stir the flour and cocoa together and then sprinkle the cocoa powder back on the surface.

TIPS

- Use colorful sugar sprinkles and make deposits in random places on your moon surface. Try your impactor experiment again. Can you track the sugar movement on your lunar surface?
- Put some sugar sprinkles on your foil and drop it on the moon surface. Track the sprinkles on your flour. This is similar to how minerals are introduced to the earth's surface by meteors.
- How does velocity change the shape of the crater?
- Try dropping your impactor from different heights. What do you notice about the impact?