



Creating Craters

Activity Description

Learners will be able to experiment with their own impact craters. Learners will be able to draw the following conclusions:

- The higher the ball's starting point, the greater its velocity at impact.
- The greater an object's velocity, the larger its impact crater.
- When dropped from a given height, the greater the mass, the larger the crater.
- When dropped from a given height, the greater the volume, the larger the crater.

Procedure

1. Fill the pan with flour to the depth of 1-2 inches and tap to smooth and settle the surface. Sprinkle a fine layer of cocoa powder/sand evenly and completely over the flour. Sprinkle another layer of flour on top. Place pan over experiment area.
2. Ask your learner if they can see the different parts of a crater from the pictures. Most craters have deep central depressions, raised arms, and a blanket of ejected material surrounding them. Ask what might affect a crater's appearance. The nature of the surface, and the speed, size, and mass of the object making the impact.
3. Begin with balls that are similar in size, but different density (for example, a ping pong ball and a bouncy ball). Encourage your learner to take one and drop it from 3 different heights. Repeat the test using other balls. If necessary, smooth out the top layer and sprinkle more layers.
4. After testing, have your learner talk about the similarities and differences they saw. See below for guiding questions.

Materials

2 cups	Flour
1/2 cup	Sand or cocoa powder
	Newsprint/tablecloth (if experimenting inside)
1	Pie tin or other small unbreakable dish
Various	Balls of different sizes and weights
1	Ruler

Safety

This activity can be done inside on the newspaper or outside to minimize mess.



Extensions and Adaptations

- How did the crater size change when balls of different masses (things packed with more or less “stuff”) were dropped from the same height?
- How does a ball’s mass affect the crater size? What is the relationship between mass and crater shape?
- How do the different speeds of the balls affect the crater sizes?

