CURIOSITY AT HOME

CRATER CREATORS

MATERIALS

- Old newspapers or cardboard (optional)
- Pan or pie tin
- Flour (about 2 cups)
- Cocoa powder or cinnamon (about ¼ cup)
- 4 rocks of various sizes not to exceed 4 cm (1 ½") in diameter
- Meter- or yardstick
- Paper or science notebook
- Pen or pencil

The surface of the moon is scarred with craters of different sizes and shapes. The following activity can help demonstrate the impact asteroids and meteorites have on our moon and other planetary bodies.

PROCEDURE

- If doing this indoors, place newspapers or cardboard on the floor.
- Fill a pan 5 cm (2 in) deep with flour. Level the flour so it forms a smooth surface.
- Sprinkle the surface of the flour with cocoa or cinnamon to cover the flour.
- Measure the diameters of the 4 rocks and record your measurements in the chart or in your science notebook.
- Have a helper hold the meter- or yardstick inside the edge of the pan.
- Drop the smallest rock into the pan from 30 cm (12 in) high. Record your observations in the chart or your science notebook.
- Follow with progressively bigger rocks. Record the diameter of the rocks and your observations for each in the chart or in your science notebook.
- Level the flour so it forms a smooth surface and re-sprinkle it with cocoa or cinnamon.
- Have a helper hold the meter- or yardstick inside the edge of the pan.
- In the same order used previously, drop the rocks again from 60 cm (24 in).
- Record the similarities and differences of the results of the 1st and 2nd steps.

TRY THIS

- Continue from 90 cm (3") if desired.
- Try tossing the rocks from different angles.
- What happens when craters overlap?
- What seems to have the greatest effect on the size of a crater: the speed, size, angle, etc. of the rock?

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CRATER CREATORS

6–8 GRADE EXPLORATION

- In the charts below, record your predictions of what **you think will happen,** before beginning the height tests. Also measure and record the rock sample's diameters in the chart.
- Test each rock from 30 cm (12 in) and 60 cm (24 in) height at a 90° angle to the surface being sure to let go of the rock **without adding** additional force. Simply drop the rock. Draw or write your observations in the chart.
- Test each rock from 30 cm (12 in) and 60 cm 24 in) height at a 90° angle to the surface **adding** an additional force or push to the rock. Draw or write your observations in chart.

30 cm drop	Diameter of Rock	Prediction	Observation
Rock 1			
Rock 2			
Rock 3			
Rock 4			

60 cm drop	Diameter of Rock	Prediction	Observation
Rock 1			
Rock 2			
Rock 3			
Rock 4			

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6–8 GRADE EXPLORATION *continued...*

PARTS OF A CRATER

Floor: the flat or bowl shaped bottom of the crater

Rim: the top of the raised area surrounding the crater

Wall: the sides of the crater between the floor and the rim

Depth: the measurement from the original surface of the landscape to the bottom of the crater floor.

Diameter: the measurement of a straight line from one side of the crater through the center and to the opposite side of the crater

Ejecta: the material thrown out of the crater during impact

Ray: one streak of ejecta starting from the rim and extending outward

Draw a picture of the crater and label the parts.

Part of the Crater	What is the relationship between the rock diameter and the part of the crater?	What is the relationship between the impact height and the part of the crater?
Floor		
Rim		
Wall		
Depth		
Diameter		
Ejecta		
Ray		

- How does adding additional force impact the craters you made?
- What happens if the rocks hit the surface from an angle other than 90°? How does the angle change the shape of the crater?
- Comparing the Moon and the Earth, why do you think they show differing evidence of crater impacts?

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