

In-Class Meteor and Crater Activity

Goal of the activity:

To demonstrate how impact craters are formed and how the craters look under different lighting conditions

Materials Required:

1. Large turkey roasting pan
2. 5 lbs. of white flour
3. 1 can of Cocoa powder
4. 6 small round balls or stones of different sizes, largest being 15 mm in diameter
5. Flashlight
6. Newspaper

Instructions:

Empty one bag of flour into the turkey roasting pan. Shake the pan from side to side to level the flour and place the pan on the floor on top of the newspaper. Sprinkle the top of the flour with the Cocoa powder just thick enough to cover the white flour. From a distance of about 1 meter have a student drop a ball onto the mixture. Turn the lights out and hold the flashlight at a low angle over the tray. Then slowly move the flashlight until it is perpendicular to the crater. This simulates orbit of the moon around the earth. When the flashlight angle is low this is the crescent or quarter phase of the moon. When the flashlight is perpendicular to the crater this represents the full moon phase.

Observations:

Take note of the shadow profile. When the flashlight angle is low the shadows are long and the crater is easy to see. When the flashlight is perpendicular to the crater the details of the craters structure are more difficult to see. This is exactly how craters look through a telescope. During the crescent, quarter, waxing and waning phase of the moon a great amount of detail can be seen along the terminator line (the line between the dark part and sun lit part of the moon). Notice the size and shape of the crater. Also take note of the “rays” the spread away from the crater. Similar rays can be seen on large impact craters on the moon.

Try dropping the other balls and notice the different sizes of craters and their structure. Also try tossing the balls at an angle. Notice the different shape of the crater.

Another activity is to measure the crater size and compare it to the ball size. Drop the balls at different heights and measure and compare the results.

For more Information on Lunar craters please visit:

<http://www.enchantedlearning.com/subjects/astronomy/moon/Craters.shtml>