Cratering

The results of cratering can be seen on all planetary surfaces in the solar system, with the exception of the gas giants. What are some of the main physical features of a crater, and what factors affect how the crater looks? Why are some planets covered with craters, while some planets only show a few? Why is it that different regions of the same planet can show varying amounts of cratering?

In this lab we will create craters on a simulated planetary surface. What do the craters look like? What happens to the planetary surface during impact? How can we distinguish ages of planetary surfaces? You will take the observations made during this first part of the lab with you as you look at images of real planetary surfaces, in order to apply your knowledge by surmising some of the impact history of the different surfaces.

Important Terms:

Bolide – a falling object (meteorite, comet) that strikes a surface
Central Peak – a mountain found in the center of large craters. It is formed by the "rebound" of the rock at the impact site.
Crater – a (usually) circular depression in a surface caused by an impact
Ejecta – material tossed out of the crater
Ejecta Blanket – ejecta tossed out at low speed, lying like a blanket around the crater
Rim – the raised edge of the crater formed by the outwards and upwards compression of the crater walls.
Floor – the interior of the crater, generally flat in large craters.
Rays – ejecta tossed out of the crater at high speed, forming long lines pointing directly away from the crater.

Things to think about for lab:

What are the factors that could affect the appearance of an impact crater?

How can you change these factors systematically in order to determine their relative influence on crater size and appearance?

Does the illumination of the planetary surface affect crater appearance? Why might this be important?