



## Mapping Craters on the Moon



Impact craters are the remains of collisions between an asteroid, comet, or meteorite and the Moon. These objects hit the Moon at a wide range of speeds, but average about 12 miles per second (20 kilometers per second).

The surface of the moon is scarred with millions of impact craters. There is no atmosphere on the moon to help protect it from bombardment from potential impactors (most objects from space burn up in the Earth's atmosphere). Also, there is no erosion (wind or water) and little geologic activity to wear away these craters, so they remain unchanged until another new impact changes it.

These craters range in size up to many hundreds of kilometers.

### **Different Types of Impact Craters**

The size, mass, speed, and angle of the falling object determine the size, shape, and complexity of the resulting crater. Small, slow objects have a low energy impact and cause small, simple craters. Large, fast objects release a lot of energy and form large, complex craters. Very large impacts can even cause secondary cratering, as ejected material falls back to the ground, forming new, smaller craters, or a series of craters.

Most craters on the Moon that have diameters less than about 15 kilometers have a simple, bowl-like form.

Lunar craters with a diameter over about 15 kilometers have more complex forms, including shallow, flat floors made of solidified lava, central uplifting (a single peak, multiple peaks, or a ring), and terraces on the inner-rim walls.



