

**The name of this student text is  
“What is Cratering?”**

**Our Solar System is made up mostly of the empty space. It includes the Sun, eight planets that revolve around the sun. It also includes smaller bodies such as dwarf planets (e.g., Pluto), asteroids, and comets.**

**Early in our Solar System’s formation, gas and dust came together into rocks. These rocks hurdled in space much like students in a hallway between classes during school.**

**Some students may be able to make it from one class to the next without bumping into a fellow student. But most of us have more than one collision during our trek from one class to the next.**

**So it was and still is in our Solar System. Rocks and ice pieces of various sizes bump into one another from time to time.**

**However, one difference between students bumping into each other in the hall and rocks and ice bumping into each other in space is that of size. Often when these collisions happen in space, it occurs between objects that range in size from a speck of dust to that of a planet!**

**Question: When two objects of great mass collide, what are some things that could happen?**

**What happens when a small body hits a planet or moon? It sometimes leaves a hole in the ground called a crater.**

**The energy from the moving body is transferred into the planet, the ground is compressed.**

**The shockwave carrying the energy rebounds and carries debris into the atmosphere or into space. On some bodies, ejecta falls back to the surface and a circular hole in the ground remains.**

**Any moving body has kinetic energy. This energy is the product of the mass times the velocity squared divided by two**

**The familiar crater formation is the result of the energy exchange. The kinetic energy of the impactor determines the amount of energy involved.**

**The material properties of the impacted body determine how the surface will respond to that energy.**