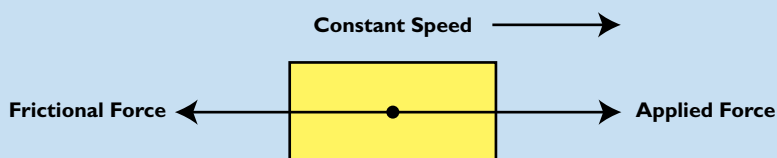




## PHYSICS TALK

### Frictional Force

A force called friction arises when an attempt is made to slide an object on a surface. When an object resting on a horizontal surface is pushed or pulled horizontally, the amount of the force of friction between the object and the surface is equal to the amount of the horizontal force required to make the object move at constant speed. As the object moves at constant speed, the applied force causing the motion is equal in amount but opposite in direction to the frictional force.



If the amount of the applied force is less than the frictional force, the object does not slide on the surface; if the amount of the applied force is greater than the force of friction, the object accelerates as it slides across the surface.

## INQUIRY INVESTIGATION

Astronauts on the moon found that the soil at the surface is powdery but firm. Do you think the kind of surface beneath an object also affects the frictional force? How could you find out? Might this also affect the ability to walk or run on the moon?



## REFLECTING ON THE ACTIVITY AND THE CHALLENGE

Friction is involved somehow in most if not all sports. Any sport involving walking or running also involves friction. Sliding friction is the basis for some sports such as shuffleboard and curling. Most winter sports also are based on sliding; since there is no water, snow, or ice on the moon, are all winter sports “out,” or could some winter sports equipment be adapted to slide on moon soil? One thing is certain, your proposal to NASA won’t “slide through” if you don’t demonstrate that you understand frictional forces on the moon.