Quicksand

When sand or fine grain soil becomes saturated with water it can behave more like a liquid than a solid, causing heavy objects to sink. Shaking during an earthquake can even cause loose soils that are not completely saturated to act this way.

WHAT TO DO

Place a metal nut on the surface of sand in a small bowl (you may also bury a small piece of Styrofoam under the sand). Shake the bowl quickly and observe what happens. Now place the bowl in a large tub of water, allowing water to enter the bowl through several small holes in the bottom. Repeat the shaking and observe what happens.

WHAT'S HAPPENING?

Normally sand grains pack together very tightly and act like a solid material, easily supporting heavy objects on the surface. When completely saturated with water, however, the sand grains are free to slide past each other, and can flow more like a liquid, particularly if disturbed. Now an object that is denser than the sand (or water) will sink (and a buried object less dense will float to the surface). This is quicksand. As long as there is not enough water to saturate the sand it normally won't be able to flow this way (i.e. the ground will be firm and stable), but if it is shaken very quickly as can happen during an earthquake, any water that is present between the sand will be unable to escape. This creates pressure that pushes back on the sand, loosening it and allowing it to flow like the quicksand. This process is called liquefaction, and can cause very serious damage to homes and buildings as they become unstable and sink.