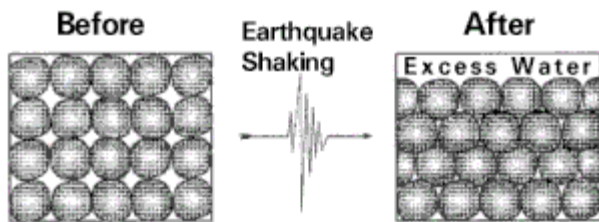


## Liquefaction Experiments

### What is Liquefaction?

(<http://mceer.buffalo.edu/infoservice/Education/soilLessonPlan.asp>)

When there is ground water less than 30 feet from the surface in soils that contain layers of sand, the pressures generated by repetitive squeezing of the earth by several seconds of seismic wave vibrations will cause the ground water to flow up and out. When this occurs, the sand grains, which have no strength except when touching each other, are forced apart. The ground then takes on the properties of a semi-solid. When it happens over a large area, houses and buildings with inadequate foundations may actually sink slightly. When liquefaction happens in a small area, liquefied sand can be ejected to the surface through fissures in the overlying layers. Soil failure, as described earlier, will have a larger impact on pipelines and pile foundations, and other structures below the surface of the earth.



1. Take soil samples from around the school. Have students examine different grains under a microscope, draw them to scale! (make note of different shapes and sizes).
2. Experiment with different sand mixtures, sizes and clays. Test them out on the shake table with water to see how well each liquefies.
2. Using 2 cylinders fill with sand burying a pin pong ball in one and placing a heavy object on the top of the other.
3. Make a mixture of sand and gravel of different sizes for the students. Give them different size sifters with different size holes for the different gravels to pass through. (chicken wire, pasta strainers, window screens, etc.)