SEARCHING FOR METEORITES

Goal:
Model the distribution of materials after meteorite impacts.

Estimated time: 45-60 minutes
Who to do it with: Ages: 5–Adult
Numbers: 1 or more!

What you need:
- Water faucet to fill balloons
- Measuring cup

Per group
- Funnel

Per individual
- 1 balloon
- 0.1 liter flour (1/2 cup)
- 10 to 20 small pebbles (colored aquarium rocks work well)
- Procedure/Data Table on page 3.3-3.6:
  http://ares.jsc.nasa.gov/ares/education/program/ExpMetMys/LESSON3.PDF

Advanced preparation:
1. Assemble materials for each group.
2. Practice filling balloon with flour and check for appropriate locations to conduct impacts.

How to do it:
1. Share background information as appropriate from Educator Guide page 3.1.
   a. Explain that meteorites are rocks from space that hit the Earth.
   b. Explain that finding meteorites is quite difficult because most meteorites look like Earth rocks to the untrained eye.
2. Explain that in this activity, we will model the search for meteorites by creating water balloons filled with water and flour.
3. Have participants work in groups and individually fill balloons as directed on student procedure 3.4.
4. Once participants have their balloons filled and ready to go, move to the designated launch site and have them throw their balloons one at a time at the target zone on the ground.

5. Have participants work as a group to record observations of one impact and search for the pebbles (meteorites). Then move onto the next, etc.

6. Make sure your participants clean up all balloon fragments and leave impact areas as clean as possible.

7. Involve participants in the following questions:
   a. Based on your observations, which surface was the easiest for pebble recovery? Which was the hardest? Why?
   b. What type of land surface would be most productive for searching for meteorites? Why?

Optional:

8. If you have access to computers, participants can Find a Meteorite with this computer interactive: http://dawn.jpl.nasa.gov/meteorite/experiment.asp


Why do it:

Studying meteorites is an easy way to study rocks from other planets or from the asteroid belt. Many meteorites came to Earth from Vesta or Vestoids!

Some meteorites come from asteroids that are very old. A lot of asteroids formed in the beginning of the solar system (4.5 billion years ago), and impacts since then have sent us pieces of the asteroids. So meteorites are like having a time machine that can tell us what things used to be like in the beginning of the solar system. Why? Meteorites didn’t form at the beginning of the solar system (4.5 billion years ago), asteroids did. Most meteorites we have are not that old because they would have been cycled through the Earth or weathered away.