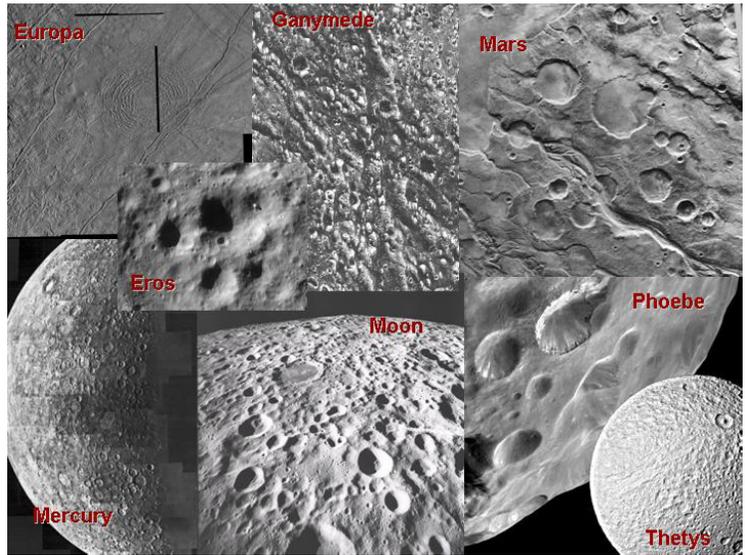


DIY CRATERS!

In this activity, students will investigate and compare the physical properties of the Earth and Moon. Students will be able to compare and contrast the process of regolith formation on Earth and the Moon.

Materials

- Graham crackers
- Animal crackers
- Oreos
- Toasted bread
- Small pan
- Sand paper
- Large Tray
- Fist-sized ball or rock
- Notebook to record observations



This image collection shows surfaces of various planets and satellites of the solar system such as Mercury, Mars, the Moon (satellite of Earth), Europa and Ganymede (satellites of Jupiter), Phoebe and Tethys (satellites of Saturn), and the asteroid Eros. Photo credit (<https://www.psi.edu/epo/explorecraters/background.htm>)

Instructions

Part 1- Earth

1. Imagine that the piece of toasted bread is a rock on Earth. Your hand is the wind. The sand paper is wind carrying particles of sand.
2. Predict the effects of rubbing just your hand and then the sand paper across the toasted bread.
3. Now try it: rub your hand across the toasted bread and observe the bread and the pieces which fall from it onto the pan. Record observations.
4. This time rub the sand paper across the toasted bread and observe the bread and the pieces which fall from it onto the pan. Record observations.
5. How was the effect different?
6. How is this activity related to processes on Earth? (This represents the processes of weathering and erosion that occur on Earth as a result of the Earth's atmosphere.)

Part 2 - Moon

1. Now we will investigate the effects of meteoritic bombardment on regolith formation.
2. In a small pan, place 2 slices of toasted white bread onto 3 slices of toasted golden wheat bread. This represents the Moon's crust.
3. Drop a rock onto the layers of toasted bread twice. Describe the bread slices and the crumbs.



4. Drop the rock 20 times onto the layers of toasted bread. Describe the bread slices and the crumbs.
5. Which crumbs can be seen at the surface? Why?
6. How does the thickness of the crumb layers compare after 2 hits and after 20 more hits?
7. How does meteoritic bombardment make regolith on the Moon?
8. Compare the differences in the Moon's surface versus the Earth's. (The Earth's surface is altered by the effects of erosion and weathering caused by factors such as the wind and water. However, there are no such factors on the Moon. Instead, the Moon's surface is altered by collisions from objects such as comets and meteors.)

Background

The Earth's surface is altered by weathering and erosion from factors such as the wind and water. However, there is no wind or water on the Moon, since there is a weak atmosphere. As a result, the surface of the Moon is altered by impacts from objects such as meteors and comets.

So why do scientists want to study craters in the first place? The destructive effects are one of the main reasons. Impact craters have been seen on planets and satellites all over the solar system. Some surfaces have so many impact scars that they pile up on top of one another, wiping out the ones that were formed earlier.

For additional information on everything craters, visit <https://www.psi.edu/epo/explorecraters/background.htm>.