Lunar Surface

Purpose

To make a model of the Moon's surface and to consider the geologic processes and rocks of each area.

Background [also see "Teacher's Guide" Pages 2, 3, 4, 12, 13]

A variety of features are evident on the lunar surface. These features include **craters** with and without **rays** (also see the "Impact Craters" activity on Page 61), **crater chains**, **maria**, **rilles**, and **mountains**.

crater chains - in curved paths are probably incompletely formed rilles,

- in straight paths are probably from rocks thrown out during an impact event and landing in a row.

rilles - are long valleys crossing maria that formed as underground lava channels which collapsed after the hot lava flowed away.

mountains - almost all in the highlands are the rims of large craters,

- also occur in the centers of craters that are larger than 40 km diameter; these mountains are called central uplifts,

- also occur as low, circular, rounded hills called domes.

In this activity students will use clay, plaster of Paris, or playdough to construct model surfaces to match what they see on maps and photographs of the Moon. They "flag" Apollo landing sites and consider the collection site of each Lunar Disk sample.

Preparation

Review and prepare materials listed on the student sheet.
Obtain one or more lunar maps. Students can either be assigned to or given a choice of specific areas to model. Using maps of both the nearside (Earth-facing side) and farside of the Moon will give more variety of surface features.

Collect trays or shallow cardboard boxes and modeling material (recipes for playdough appear on Page 78). Assemble sculpturing tools such as wooden sticks, plastic knives, rolling pins, etc.

Lunar Surface

It is beneficial to do "The Lunar Disk" activity (on Page 39) first so students can relate the samples to their model surfaces.

In Class

Consider having cooperative teams build one model surface. Each team is responsible for describing the surface features, explaining the geology, and listing the typical rock types of the area. Either draw an outline around each area on a Moon map or if you have an extra map, cut the map into sections. The whole map is finally recreated by putting the model surfaces back together.

Have the students use toothpick flags to label Apollo landing sites.

Wrap-up

Review the variety of surface features found on the Moon. Are some features more common than others?

What are the most common terrains on the Moon? Do these terrains exist on the nearside, farside, or globally?

Review the processes that made the various surface features. Also see the "Impact Craters" activity on Page 61 and the "Clay Lava Flows" activity on page 71.

What kinds of rocks are found in the areas modeled by the students? Also see the "Apollo Landing Sites" activity on page 43 and the literature which accompanies the Lunar Sample Disk.

If the student teams made models of different sections of a large map, then did the modeled surface features match from tray to adjacent tray? Have the students discuss why or why not.

Lunar Surface

Purpose

To make a model of the Moon's surface and to consider the geologic processes and rocks of each area.

Key Words

crater

mountain

rille

mare

crater chain

ray

terrain

Materials

binoculars or telescope

lunar map

photographs of the Moon

clay, plaster of Paris, or playdough

tray

sculpturing tools

toothpick flags

Lunar Sample Disk

Procedure

1. Observe the Moon using **binoculars** or a **telescope**. What surface features can you see?

2. Look at a **map** and **photographs** of the Moon. List the many different features you see.

3. Prepare a model lunar surface by placing a thin, even layer of **modeling material** on a **tray**.

4. Use **sculpturing tools** to form the features that you see on the Moon's surface.

5. How do you think these surface features were created on the Moon? List at least one idea for each kind of feature.

6. If your model surface has an Apollo landing site, then label it with a **toothpick flag**.

11

7. What kinds of rocks occur in your area? If your area has an Apollo landing site, then include the names of samples from the **Lunar Sample Disk** in your answer.

8. Compare your model surface with your classmates' surfaces. Can you match features from one area to another? Why or why not?