



Apollo Landing Sites

Purpose

To learn about the locations and geology of the six Apollo landing sites.

Background

Latitude and **longitude** coordinates for the Moon start at a point near the crater Bruce. From this starting point (0° latitude, 0° longitude) locations towards the east side of the Moon (the direction in which the sun rises) are indicated with east longitude values. Locations towards the west side (the direction in which the sun sets) have west longitude values. North latitude is measured towards the Moon's north pole. South latitude is measured towards the Moon's south pole.

Twelve **astronauts** in six **Apollo** missions landed on and explored the **nearside** (Earth-facing side) of the Moon between 1969 and 1972. The six landing sites were chosen to explore different geologic **terrains**.

Refer to the rock descriptions included with the Lunar Sample Disk for details on where the samples came from and who collected them. An answer chart is provided.

Preparation

Review and prepare materials listed on the student sheet.
See the Resource Section on Page 24 for sources of maps and globes.

In Class

Refer back to the Lunar Sample Disk to review the collection sites of each sample. Ask students to consider the geologic differences of the six sites.

Wrap-up

Were the Apollo landing sites in similar terrains? Which crew was the first to work in hilly terrain?

Extensions

1. Form cooperative teams to research each Apollo landing site (the who, what, when, where, and why) and to report to the class.
2. Why were all six Apollo landing sites on the nearside of the Moon?
3. Why were there no further Apollo Moon landings?
4. Was Apollo the only program to land on the Moon? Discuss the unpiloted American and Soviet missions and landings.

Apollo Landing Sites Chart

Apollo Mission	Landing Date	Longitude	Latitude	Major Geologic Features and Rock Types (rock types underlined are found in the Lunar Sample Disk)
11	July 20, 1969	23 °E	1 °N	Mare (Sea of Tranquility), basaltic lava.
12	Nov. 19, 1969	23 °W	3 °S	Mare (Ocean of Storms), rocks are basaltic lava; ray from Copernicus Crater crosses the site.
14	Jan. 31, 1971	17 °W	3 °S	Highlands (Fra Mauro formation) - thought to be ejecta from the Imbrium Basin.
15	July 30, 1971	4 °E	26 °N	Mare (Hadley Rille in a mare area near the margin of Mare Imbrium) and highlands (Apennine Mountains, a ring of the Imbrium basin); rocks are <u>breccia</u> and <u>basalt</u> .
16	April 21, 1972	16 °E	9 °S	Highlands (Descartes formation and Cayley Plains); rocks are <u>anorthosite</u> and <u>highlands soil</u> .
17	Dec. 11, 1972	31 °E	20 °N	Mare (Sea of Serenity) and Highlands; rocks are <u>mare soil</u> , <u>orange soil</u> , basaltic lava, anorthosite.



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Key Words

latitude

longitude

mare

highlands

Sea of Tranquility

Ocean of Storms

Fra Mauro

Hadley-Appenine

Descartes

Sea of Serenity

Taurus-Littrow

Materials

lunar maps with latitude and longitude grid

“Apollo Landing Sites Chart”

Moon globe

Procedure

1. Look at a **map** of the Moon showing the Apollo landing sites. Fill in the “**Apollo Landing Sites Chart.**”
2. Find the landing sites on a **globe** of the Moon.
3. How do **latitude** and **longitude** compare on Earth and on the Moon?

4. Compare and contrast the six Apollo landing sites. (Think about who, when, where, and geology for your answer.)

5. Which site would you most like to visit? Why?

Apollo Landing Sites Chart

Apollo Mission	Landing Date	Longitude	Latitude	Major Geologic Features and Rock Types

Nearside of the Moon

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