

# BACK TO THE MOON FOR GOOD

Recommended for grades 4 and up

## Program Overview

In case you haven't heard, the Moon is trending again... and in a big way. Like in the glory days of the 1960s and 1970s, our big white space neighbor is enjoying the attention of lunar explorers. Only this time, they're going back to the moon for good.

This educational full-dome planetarium show chronicles teams around the world competing for the largest incentivized prize in history, by landing a robotic spacecraft on the Moon.

To win the Google Lunar XPRIZE, a team's spacecraft must land successfully, then navigate 500 meters over the lunar surface, and send video, images and data back to Earth. This global competition is designed to spark imagination and inspire a renewed commitment to space exploration, not by governments or countries – but by the citizens of the world.

## Show Synopsis

The show opens with the first era of space exploration in the late 1960s and early 1970s. We see what that era of landers and orbiters taught us about our nearest neighbor, including the discovery of the Moon's origin, composition, structure and the accessibility of raw materials on its surface.

The Google Lunar XPRIZE is introduced as the largest incentivized competition to date, designed to democratize space and create new opportunities for eventual human and robotic presence on the Moon. We see the engineering and innovation steps taken by the internationally distributed teams competing to land a spacecraft on the Moon and vie for additional prizes. We highlight the human spirit of competition and collaboration as teams take on this audacious challenge.

Who will win the \$30 million Google Lunar XPRIZE? The audience is taken through a simulation of successful launch, landing and lunar surface travel. The show ends with a stunning glimpse of a plausible scenario for our future on the Moon.



## Vocabulary

<b>Moon</b>	<b>craters</b>
<b>gravity</b>	<b>space race</b>
<b>moonquakes</b>	<b>Apollo program</b>
<b>oxygen</b>	<b>mass</b>
<b>hydrogen</b>	<b>robotic spacecraft</b>
<b>lunar orbit</b>	<b>incentive</b>

## Suggested Pre- or Post-Visit Activities

1. For much more information about the **Google Lunar XPRIZE** competition, you and your students can visit the official project website at:

<http://www.googlelunarxprize.org/>

2. Have students research the "**We choose to go to the Moon**" **speech** delivered by former president John F. Kennedy in front of a large crowd at Rice University in Houston, Texas in 1962. How did Kennedy's speech impact the United States space program and the efforts of NASA to send a manned space flight to the Moon?
3. Have students research the "**space race**" between the United States and the former Soviet Union. What effect did the space race have on exploring the Moon? Who won the race?
4. Before sending astronauts to the Moon, robotic spacecraft were first sent to scout out landing sites and check surface conditions. Have students research the history of the U.S. **Ranger probes and Surveyor landers**, and the Soviet **Lunokhod rovers**.
5. After the United States sent a total 12 astronauts to explore the Moon from 1969-1972, no humans have been back to the Moon's surface in more than 40 years. **Why do you think we've stayed away from the Moon so long? Is that a good or bad thing?**
6. Have students research the history of **incentivized prizes**, such as the **Longitude Act of 1714** for ocean navigation and the **Orteig Prize** for the first non-stop flight between New York and Paris in the early 1900s. Do you think the **Google Lunar XPRIZE** will stimulate a similar change in the public's expectation of privatized space flight?