



OVERVIEW

This lesson is designed to introduce students to the Apollo missions and set the scene for the Lunar samples by investigating the landing sites where some of the samples in the Lunar disk came from.

Students will use Google Earth to explore the Apollo 15 landing site, finding out information about the samples collected at the site, flying into panoramic images, and using the ruler tool to measure the distance the astronauts covered while exploring the surface, and work out how long it took them to make this journey.

CURRICULUM LINKS

Speed, distance, and time.

Calculating time given a speed and distance.

Making measurements.

WHAT YOU NEED

Laptop with Google Earth installed (one per group)

A13 PowerPoint

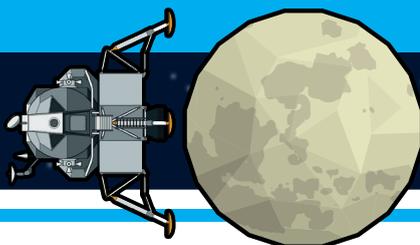
13.1 Following the astronauts worksheet

Explore the Moon with Google Earth guide



Explore the Moon with Google Earth guide

FOLLOWING THE ASTRONAUTS



STARTER

Run through the Apollo introduction slides on the PowerPoint to set the scene and show where the Moon samples in the box came from.

Demonstrate to the students the basics of navigating around the Moon in Google Earth (you will want to practice this prior to the lesson).



A13 PowerPoint



MAIN ACTIVITY

Students follow the instructions on their sheets to explore the Apollo 15 landing site and find out information about the samples collected.

They then use the ruler tool to follow the path that the astronauts took and use this information and the average speed of the Lunar Roving Vehicle to calculate how long it took, and how much time the astronauts had to collect their samples as a result.

ACTIVITY 13.1 FOLLOWING THE ASTRONAUTS

2. EXPLORE AN EVA

You are going to focus on EVA 2. Zoom in on the bottom part of the route using the navigation tools (see Exploring the Moon in Google Earth guide).

b) Now click on the red dot by 7 and read the information. Explain briefly what the Astronauts found here, and why it was important.

How much time did they have for science?

The astronauts spent 7 hours and 12 minutes performing EVA 2. A good chunk of that time was spent in driving the LRV to interesting points. You are going to measure how far they travelled in total on the EVA, and calculate how long it would have taken for them to drive this far. You will then calculate how much time they had to spend on collecting samples and doing experiments.

Use the ruler tool to measure the total distance that the LRV travelled during the EVA. Make sure you have selected the path tab. Make a note of how many points you have used to map out the path.

Note: when drawing your path, do not click on a point you have already made. If two routes cross over, put the new point next to the old one.

Number of points: _____

Total distance (in metres): _____

The average speed of the LRV was 9km per hour. (Hint: there are 3600 seconds in one hour)

What is this speed in metres per second? _____ **m/s**

How much time did they have for science? _____

1. LOADING GOOGLE MOON

In this activity you are going to follow in the footsteps of the astronauts of Apollo 15 using the Google Earth Google Moon map. You will find out about the experiments that they did, and work out how much time they had to do them.

d) The black lines show the three EVAs (Extra Vehicular Activities) that the astronauts made during their mission. They were able to cover so much ground because they had an LRV (Lunar Roving Vehicle) – a battery powered Moon buggy that they could use to explore much further than they could on foot.

a) Launch Google Earth and open Google Moon (see Exploring the Moon in Google Earth guide for details).

b) In the layers tab, double click on Apollo Missions and then click on Apollo 15 to bring up the information box.

c) Click on the "zoom in" text in the bottom left-hand corner of the information box to go to the landing site. Close the text box by clicking the "X" in the top right-hand corner.

Continued on next sheet.

13.1 Following the astronauts



PLENARY

Get the students to seek out other interesting features on the Moon and ask some of them to come up

and show the class what they have found. You could use this as a prompt point for a research homework.