

FOOTPRINTS ON THE MOON



OVERVIEW

In this lesson, students will learn a bit more about the Apollo missions and what the Astronauts did at the landing sites.

They will then perform an experiment to determine which material, sand or flour, is most like the lunar soil, and observe samples of these under the usb microscopes to determine which is most like the actual soil samples returned from the Moon.

By looking at the shapes of the particles, they will then explain why the Apollo astronaut's footprints are still on the Moon 50 years later.

CURRICULUM LINKS

Making observations.

Reporting findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.

WHAT YOU NEED

A6 PowerPoint

Apollo Lunar Disk

6.1 Leaving a footprint worksheet

2 plastic trays (per group)

Sand to fill one tray (per group)

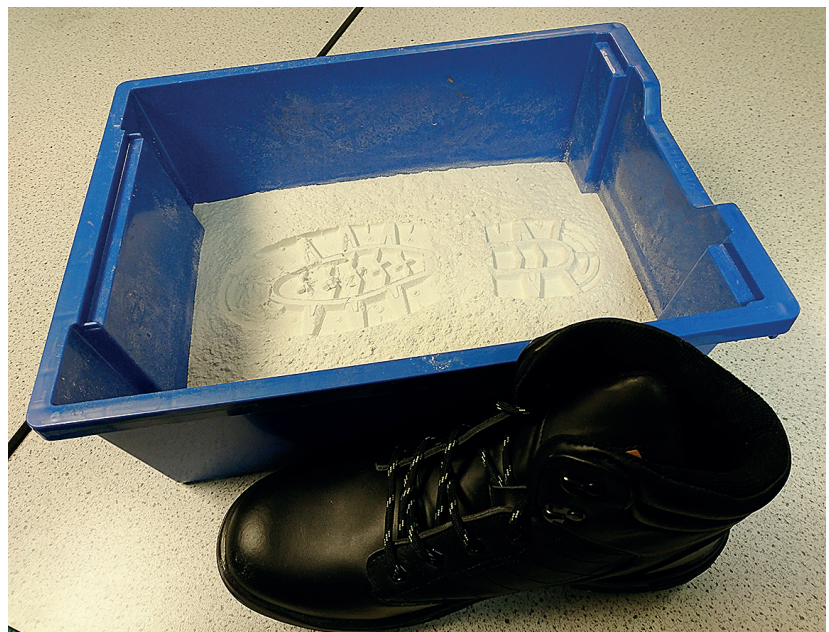
Flour to fill one tray (per group)

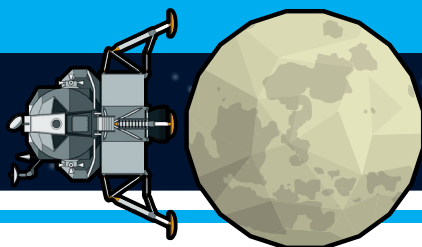
A shoe with a good grip/print (per group)

Baby wipes (for cleaning shoes)

USB microscope connected to a laptop with VLC media player installed

Before the lesson, for each group prepare two trays, one with sand and one with flour. Have one of the USB microscopes set up at the front of the room connected to a computer running VLC media player (if you have enough laptops you may wish to set up multiple USB microscopes so there are more for students to share).





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STARTER

Go through the Moon images on the slide and ask students what the differences are between the Earth and the Moon. The Moon has no atmosphere and therefore no weather. It has no active volcanos. There is nothing on the Moon that will cause weathering or changes to the surface, except for impact events. As a result, the Apollo Astronauts have left a lasting legacy on the Moon in the form of their footprints, and this is what they are going to investigate today.



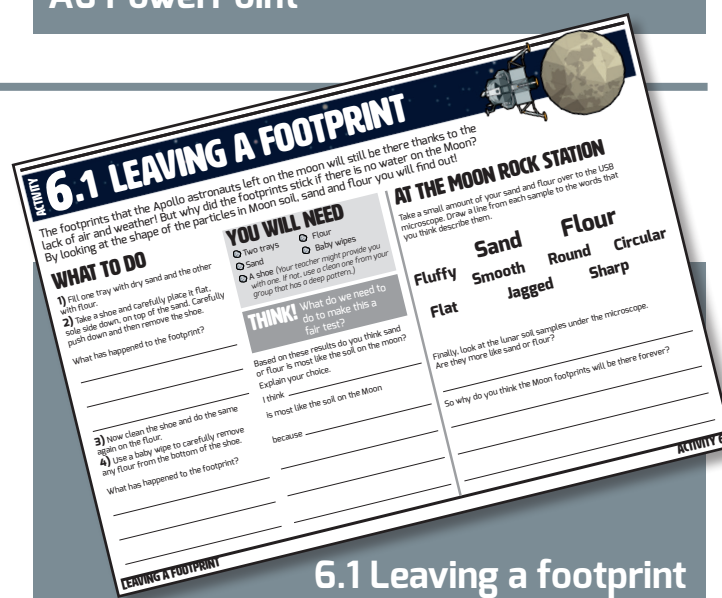
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MAIN ACTIVITY

Sort the students into groups of 4 and hand each group worksheet 6.1. Each group will need one set of the group equipment listed above. Students will recreate the first footprints on the moon and note down what they observe in differences between the sand and the flour. They then predict which of the materials is closest in nature to the lunar soil.

They then take a small sample of the sand and the flour (or one can be pre-set up at the USB microscope) and they observe these samples under the USB microscope. They draw the shape of the particles of each and comment on how the shape will affect how easily a footprint can be held in



6.1 Leaving a footprint

the material. Finally, as a class you can observe the actual lunar return samples under the USB microscope (as well as passing these and the Moon meteorite around) to take a closer look at, and determine whether the sand or the flour is most like the Moon soil, and therefore why the footprints are still there after so long.



PLENARY

To finish with, either as a class or in groups on laptops/tablets (if available) students can choose which

of the Apollo landing sites to explore in Google Earth. Discuss as a class what they found and any interesting things that they have noticed at the sites.