3. Landscape Discussion

30 mins

Children study images from Mars to note significant features. They compare them with images from Earth to help them to make hypotheses about their formation.

OBJECTIVES

- Identifying scientific evidence that has been used to support or refute ideas or arguments
- To know that science is about thinking creatively to try to explain how living and non-living things work, and to establish links between causes and effects.
- To know that comparing Mars' key landscape features with similar features on Earth can help us to understand their formation.

RESOURCES

(Per group of 4 children unless otherwise stated)

- Activity sheets 6-7 and 12
- Images K-U (Q for teacher use only)

ADVANCE PREPARATION

- Activity sheets made into cards

INTRODUCTION

The teacher explains that the new Mars rover, searching for evidence of past or present life, will look in particular for the presence of water. Where water is or has been there is a chance of discovering evidence of life. On Earth, where volcanic heat and water interact, scientists have found life. The groups study images K-P. The task is to identify what each might be and how each might have been formed by comparing images of similar features from Earth to aid identification (Images R-U).

Groups may choose one of the key features and perform one of three practical tasks. The three practical tasks use models to simulate how the key Martian features may have been formed. Children use Activity sheets 6-7 to help them decide which feature to investigate. The whole class could try all three activities (3-4 hours) or a third of the class could each investigate one feature and report back to the others (1- 11/2 hours). Later, they will compare their ideas with those of the 'experts' (Activity sheet 12). Finally, they share their ideas and evidence and suggest suitable locations for the rover landing and sampling sites.

Practical tasks, described in detail later in this section, include:

1. Exploring how the mass, size, shape, velocity, and angle of impact of falling bodies **(meteorites)** and the surface might affect the size and shape of the crater produced.
2. Investigating lava flow and layering patterns by making a 'volcano'.
3. Studying patterns produced by flowing water across a surface.

Landscape

Images can be downloaded from www.cciproject.org/topicbank/space.htm

Image K

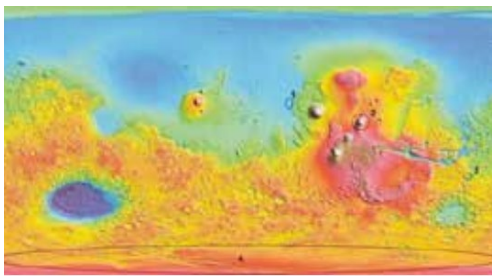


Image of Mars with landscape features for pupils

Image Q

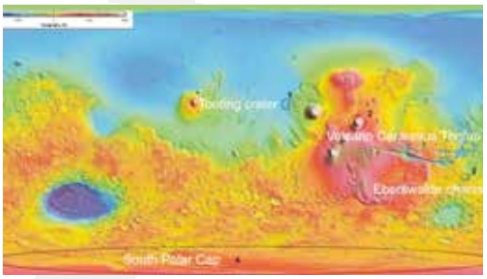
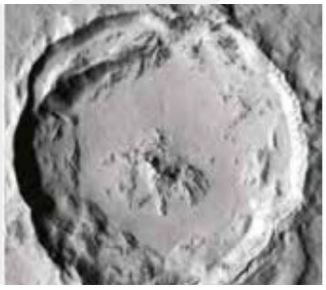


Image of Mars with landscape features marked and named for teachers pupils

Image L

Tooting Crater

Image M

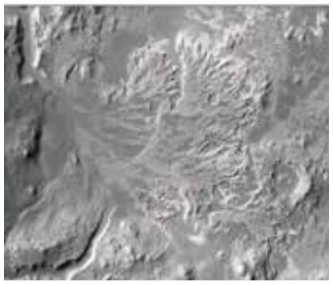


Tooting Crater close up

Image N

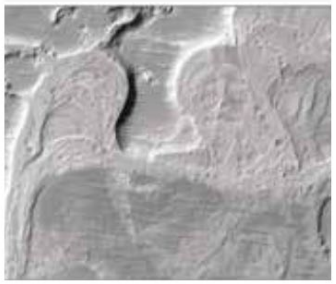
Volcano Ceraunius Tholus

Image O



Eberswalde Channels

Image P



Eberswalde Channels close up

Image R

Crater on Earth viewed from space

Image S

Volcano on Earth

Image T

Water channels on Earth

Image U

River delta on Earth viewed from space