GEEK & CO. SCIENCE!

PROJECT KIT

Ages 8+

GiaNT MaRS VOLCANO

THAMES & KOSMOS

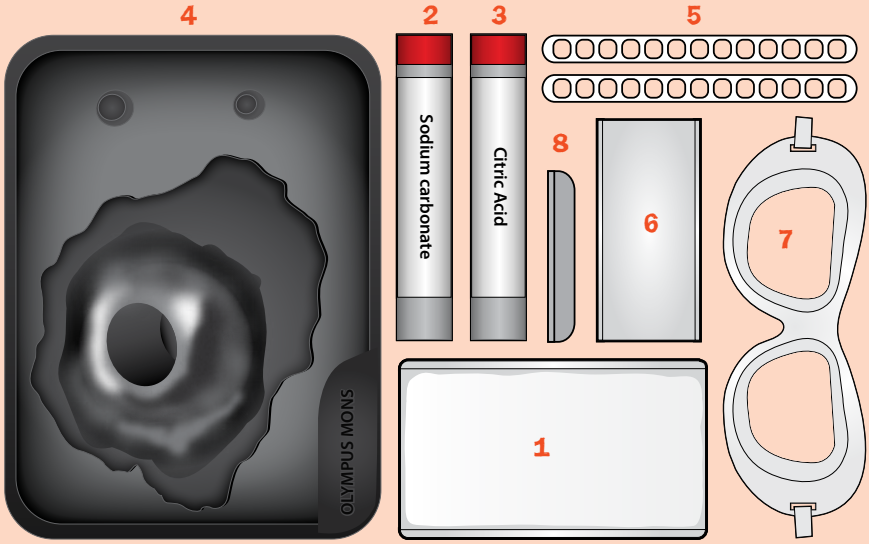
Warning.

Not suitable for children under 8 years. For use under adult supervision. Contains some chemicals which present a hazard to health. Read the instructions before use, follow them and keep them for reference. Do not allow chemicals to come into contact with any part of the body, particularly the mouth and eyes. Keep small children and animals away from experiments. Keep the experimental set out of reach of children under 8 years old. Eye protection for supervising adults is not included.

WARNING — This set contains chemicals and/or parts that may be harmful if misused. Read cautions on individual containers and in manual carefully. Not to be used by children except under adult supervision.

Franckh-Kosmos Verlags-GmbH & Co. KG, Pfizerstr. 5-7, 70184 Stuttgart, Germany | +49 (0) 711 2191-0 | www.kosmos.de
Thames & Kosmos, 301 Friendship St., Providence, RI, 02903, USA | 1-800-587-2872 | www.thamesandkosmos.com
Thames & Kosmos UK Ltd, Goudhurst, Kent, TN17 2QZ, United Kingdom | 01580 212000 | www.thamesandkosmos.co.uk

KIT CONTENTS



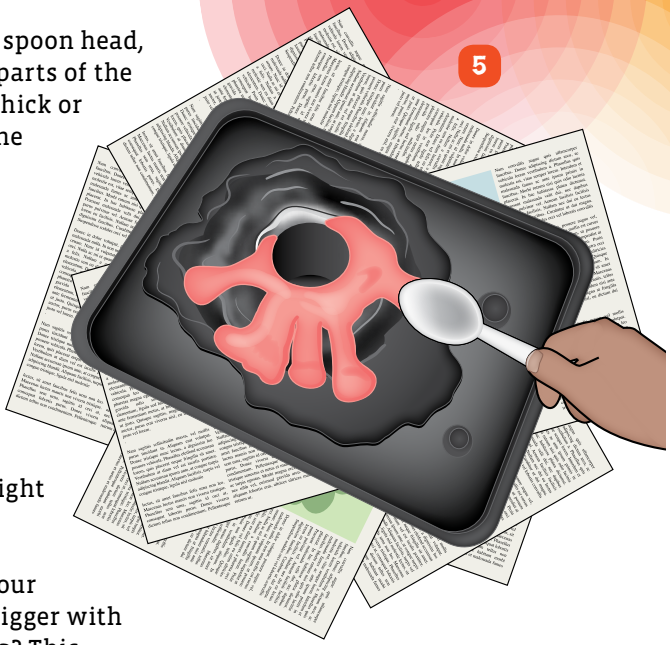
1 | Plaster (gypsum, calcium sulfate), 200 grams
2 | Sodium bicarbonate, 27 grams
3 | Citric acid, 10 grams
4 | Volcano form
5 | Stirring stick (2)
6 | Red food color powder
7 | Safety goggles
8 | Safety lid opener tool

YOU WILL ALSO NEED: *Newspaper, disposable plastic container, spoon, water, flour, small plastic cup, white vinegar, baking soda, two disposable plastic containers, tablespoon, spoon, baking powder, smooth surface*

Hey Mars Explorers!

Ready to make a model of the largest volcano in the solar system? First, you will make a model of Olympus Mons using plaster. Then you can experiment with some volcanic eruptions and modeling lava rocks. Finally, learn about Olympus Mons, how it was formed, and its unique features. Luney the Geeker will be your guide!

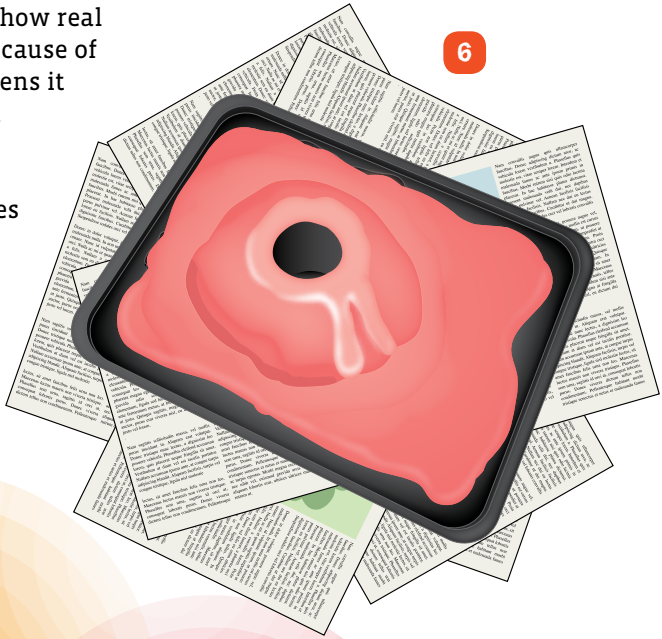
5 With the back of the spoon head, you can smooth out parts of the plaster that are too thick or nudge plaster onto the parts of the volcano form that are not covered yet.



6 You are finished when your volcano is completely covered with lava. Now you have to leave it alone for a day or at least overnight to harden.

Do you notice how your volcano has gotten bigger with this new layer of lava? This experiment recreates how real lava runs downhill because of gravity, and as it hardens it increases the size and height of the volcano.

The red color resembles the actual color of the surface of Mars. Read about it on the next page.



GEEK OUT!

THE SURFACE OF THE RED PLANET

Planet-wide sand storms. Barren, waterless deserts as far as the eye can see. Rocky, treacherous terrain with no plants or animals. Freezing cold temperatures. Sound like a fun place to go? Well, it's the surface of Mars!

Mars has only a little more than a quarter of the surface area Earth has, which is roughly equivalent to the area of Earth not covered by water. The surface of Mars is mostly covered in basalt. **Basalt** is a type of volcanic rock that forms when certain types of lava reach the surface, cool down, and harden. Basalt is also very common on Earth and other planets. It is usually gray to black in color, but because it contains so much iron, it quickly wears down to a reddish-brown color. The iron in it rusts, just like an old metal bicycle chain or iron nail.

All of the weathered and eroded basalt is what gives Mars its distinctive rusty red color. The chemical name for rust is **iron(III) oxide**, also known as the mineral **hematite**. Depending on the other chemicals found in various locations around Mars, the terrain can appear red, brown, tan, gold, and even slightly green. Nobody has yet to see Mars with their own eyes, but many robots have explored and photographed the surface of Mars, sending the images back to us.

A view of the rocky, red surface of Mars from NASA's Mars rover Curiosity.