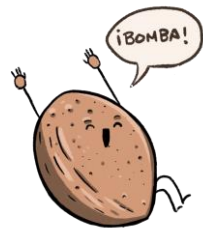
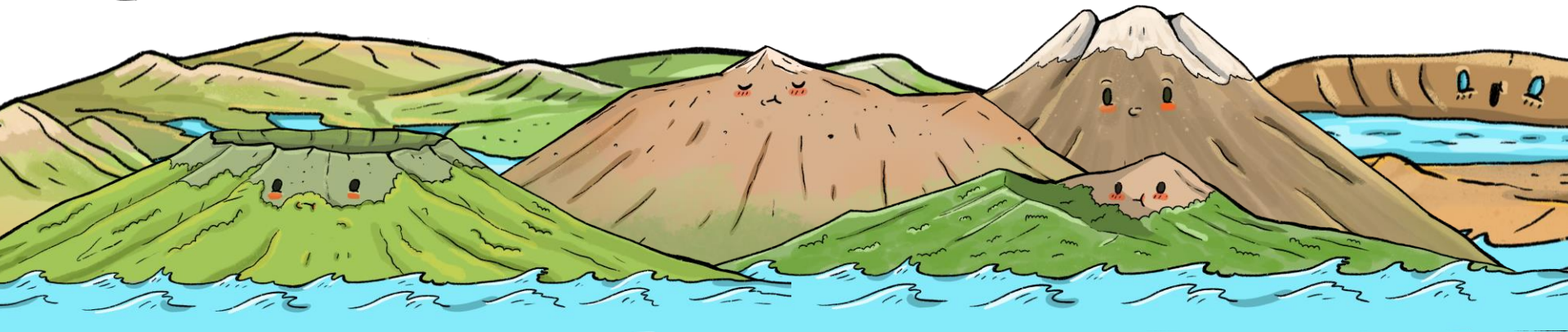


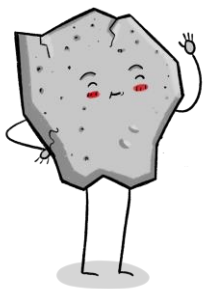
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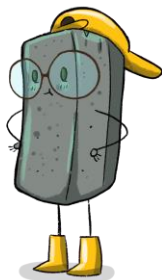
Nia Schamuells, Adelina Geyer, Meritxell Aulinas, **Olaya Dorado**,
Joaquín Hopfenbatt and Joan Martí

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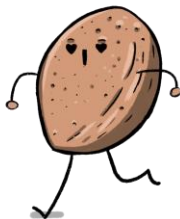




Rocky



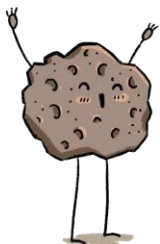
Basalti



Bombi



Xenoli



Scori



Tefri



Lava



WHO ARE WE?

THE VOLKIS: A SECRET CLUB OF VOLCANO LOVERS



@Volkisclub



WHO ARE WE?

ILLUSTRATIONS

- Nia Schamuells (@salirconunageologa).

WHO CREATED THE VOLKIS?

EDITING AND LAYOUT

- **Shamuells Art** (Nia Schamuells).
- **Grupo de Volcanología de Barcelona, GEO3BCN-CSIC** (Adelina Geyer).

TEXT

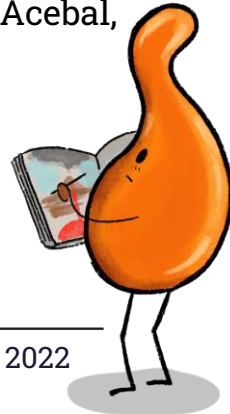
- **Grupo de Volcanología de Barcelona, GEO3BCN-CSIC** (Adelina Geyer, Olaya Dorado, Joan Martí).
- **Departament de Mineralogia, Petrologia i Geologia Aplicada. Universitat de Barcelona** (Meritxell Aulinas, Joaquín Hopfenblatt, Helena Albert).

TEXT REVIEW

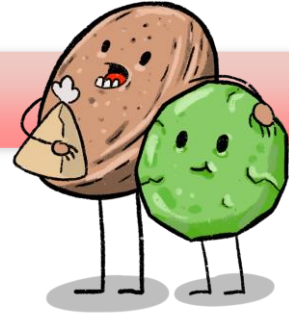
- **Grupo de Investigación en Enseñanzas de las Ciencias y Competencias, Universidad de Málaga – ENCIC** (Juliana Valencia, María del Carmen Acebal, Isabel Martía Cruz-Lorite).
- **Universidad de Salamanca** (Antonio M. Álvarez-Valero).
- **Instituto Geográfico Nacional** (Carmen López).

ENGLISH TEXT

- **Terranova Scientific** (Grant Buffet).
- **GEO3BCN-CSIC** (Dennis Brown).



PROJECT GOALS



A

Dissemination of geology among the young ones (and the not so young ones).

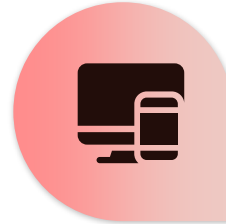
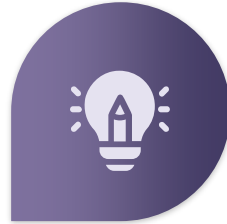


C

Free resource for teachers and educators.

B

Combination of illustration and science in a book that captivates the audience.



D

Creation of a webpage and an active social media account with additional material.

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WHAT IS A VOLCANO?

A volcano is the place where magma comes out of the Earth's interior onto the surface to become lava. This happens during...
VOLCANIC ERUPTIONS!



Volcanoes are created from fractures in the ground where magma comes out.



At the surface, the lava cools while forming volcanic rocks that accumulate around the fracture.



During an eruption, the volcanic products accumulate creating what are known as volcanic edifices! After many eruptions, these volcanic edifices can grow and become ...

Huuuuge!

AT THE BEGINNING OF THE ERUPTION, THE VOLCANIC CONDUIT ACTS AS A PIPE THAT THE MAGMA USES TO RISE FROM THE MAGMA CHAMBER TO THE SURFACE.

WHAT IS MAGMA?

Magma formed inside the Earth. It is **molten rock** accompanied by **gases** and **minerals**. Magma can also contain fragments of solid rocks that are torn from the mantle or the crust and are transported to the surface ... they are called **xenoliths**!

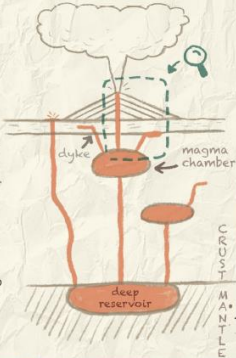
WHAT DOES THE INSIDE OF A VOLCANO LOOK LIKE?

RIGHT NOW WE ARE ONLY SEEING A SMALL PART OF THE WHOLE VOLCANIC SYSTEM.

ONCE FORMED INSIDE THE EARTH, MAGMA CAN ACCUMULATE IN LARGE RESERVOIRS LOCATED BETWEEN THE CRUST AND THE MANTLE.

FROM THERE, IT CAN RISE DIRECTLY TO THE SURFACE OR BE STORED AT DIFFERENT DEPTHS WITHIN EARTH'S CRUST INSIDE MAGMA CHAMBERS.

WHEN MAGMA IS EXTRUDED FROM THE VOLCANO ONTO THE SURFACE IT IS CALLED LAVA



N/A SCHMUELS '14

CRUST

VOLCANIC HAZARDS

A VOLCANIC HAZARD REFERS TO ANY VOLCANIC PROCESS THAT AFFECTS THE SURFACE AROUND THE VOLCANO. SOME OF THEM CAN POSE A GREAT RISK TO LIFE, THE ECONOMY, AND INFRASTRUCTURE (BRIDGES, BUILDINGS, AIRPORTS...). THERE ARE MILLIONS OF PEOPLE LIVING NEAR ACTIVE VOLCANOES!

DOME COLLAPSE

Domes can grow rapidly and become very unstable. When they break, they can generate very destructive pyroclastic density currents that travel many kilometers.

DOME

Some volcanic edifices have very steep and unstable slopes. Earthquakes, torrential rains, or explosions can cause large and destructive landslides.

TSUNAMIS

When large landslides reach the sea, they can form huge waves or tsunamis, which are very dangerous for coastal areas.

Tsunamis can also form when there are underwater eruptions.

ERUPTIVE CLOUD

VOLCANIC BOMB

Volcanic ash and gas can rise very high and form huge clouds that stretch great distances, even encircling the Earth! In the atmosphere, gases in the form of tiny droplets (aerosols) and ashes can block sunlight, producing darkness and lower temperatures. Volcanic ash is also very dangerous for aircraft engines.

When volcanic gases like sulfur dioxide react with water molecules in the atmosphere, they produce acids. These acids, when precipitated in the form of rain or snow, have detrimental effects on vegetation, lakes and rivers, and on the health of animals and people.

IN ORDER TO BE WELL PREPARED AND TAKE PREVENTIVE MEASURES, IT IS NECESSARY TO STUDY VOLCANIC HAZARDS WELL, UNDERSTAND HOW THEY ARE GENERATED, AND KNOW THEIR CONSEQUENCES. SOME EFFECTS CAN LAST FOR YEARS AFTER THE ERUPTION AND EVEN AFFECT THE ENTIRE PLANET!

ASH FALLOUT AND ACCUMULATION

Volcanic ash is transported by the wind. When it falls, it causes people and animals to have problems breathing and can damage plants and crops. If enough ash accumulates on the roofs of buildings, it can easily damage and collapse them.

Lahars are mudflows that form when pyroclastic material, rocks, and water mix together. They can be generated when storms occur, during or after an eruption, or when snow or ice melts on contact with magma or other volcanic material. They are very energetic and harmful!

Pyroclastic density currents are highly destructive flows of pyroclastic material and volcanic gas that travel at high speed for many kilometers. With their extreme temperatures (between 200 °C and 700 °C) they can melt ice and snow and start fires.

EARTHQUAKES

ASH

LAHAR

ERRATIC BLOCK

Erratic blocks are huge rocks that break off the volcano and are carried away by lava flows. If they stop, they can block the lava flow and divert it.

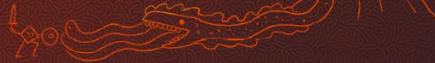
ASH

LAVA FLOW

Large amounts of volcanic gas are emitted from fumaroles. Some gases, like water vapor, are harmless, but others, like sulfur dioxide, are highly toxic!

FUMAROLE

MYTHS, LEGENDS AND... VOLCANOES!



IN SOME RELIGIONS, VOLCANOES HAVE BEEN ASSOCIATED WITH EVIL, WITH THE ENTRANCE TO HELL, AND WITH FORBIDDEN PLACES WHERE TITANS OR DEMONS LIVE. HOWEVER, IN MANY CULTURES, VOLCANOES ARE CONSIDERED SACRED MOUNTAINS THAT PROVIDE FERTILE LAND FOR FARMING.



ROCKY, WHERE DOES THE WORD VOLCANO COME FROM?



AND IN ROMAN MYTHOLOGY, HEPHAESTUS IS KNOWN AS VULCAN, GIVING RISE TO THE WORD VOLCANO.



"THE LEGEND" OF PELE

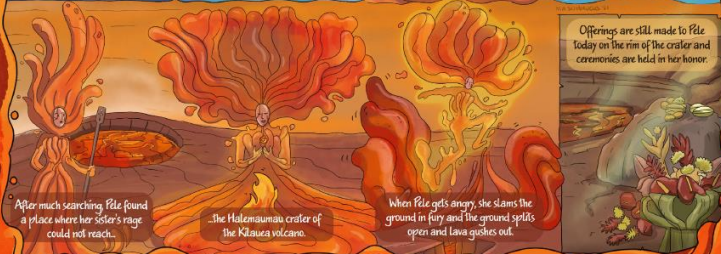


Pele, after a heated dispute with her sister Namaka, left Tahiti, her birthplace.

She traveled by canoe looking for a place away from the wrath of her sister.

She came to the Hawaiian Islands and sought refuge. On each island she lit a bonfire.

Namaka, goddess of the sea, chased her, putting out all her fires.



After much searching Pele found a place where her sister's rage could not reach.

The Halemauima crater of the Kilauea volcano.

When Pele gets angry, she slams the ground in fury and the ground splits open and lava gushes out.

Offerings are still made to Pele today on the rim of the crater and ceremonies are held in her honor.

GUAYOTA

GUANCHE DEMON THAT HIDES UNDER THE TEIDE VOLCANO (TENERIFE, CANARY ISLANDS)



TYPHOON

TITAN LOCKED UNDER THE ETNA VOLCANO (EUROPE)

AGGAYÚ SOLÁ

DEITY (ORISHA) OF VOLCANOES, DESERTS, DRY LAND, AND RAGING RIVERS IN YORUBA MYTHOLOGY (WEST AFRICA)



NGEN-WINKUL

SPIRITUAL OWNER OF HILLS, MOUNTAINS, AND ALSO VOLCANOES ACCORDING TO MAPUCHE MYTHOLOGY (SOUTH AMERICA - CHILE AND ARGENTINA)

TUNUPA

ANDEAN DEITY OF VOLCANOES AND LIGHTNING (SOUTH AMERICA - CENTRAL ANDES)



RUAUMOKO

MAORI GOD OF VOLCANOES AND EARTHQUAKES (POLYNESIA)



PELE

HAWAIIAN GODDESS OF VOLCANOES (HAWAIIAN ISLANDS)



HEPHAESTUS VULCAN

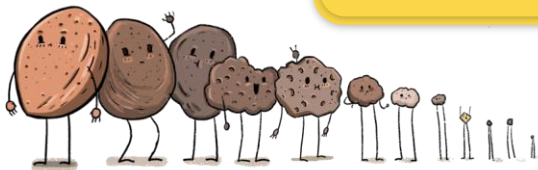
GRECO-ROMAN GOD OF FIRE AND FORGE (EUROPE)

SURTR

GOD OF FIRE FROM NORSE MYTHOLOGY (EUROPE)

RESOURCES: WEBPAGE

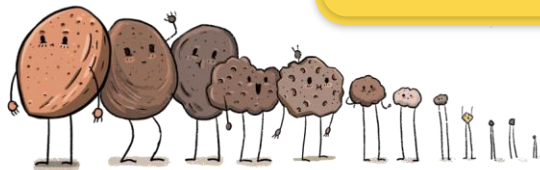
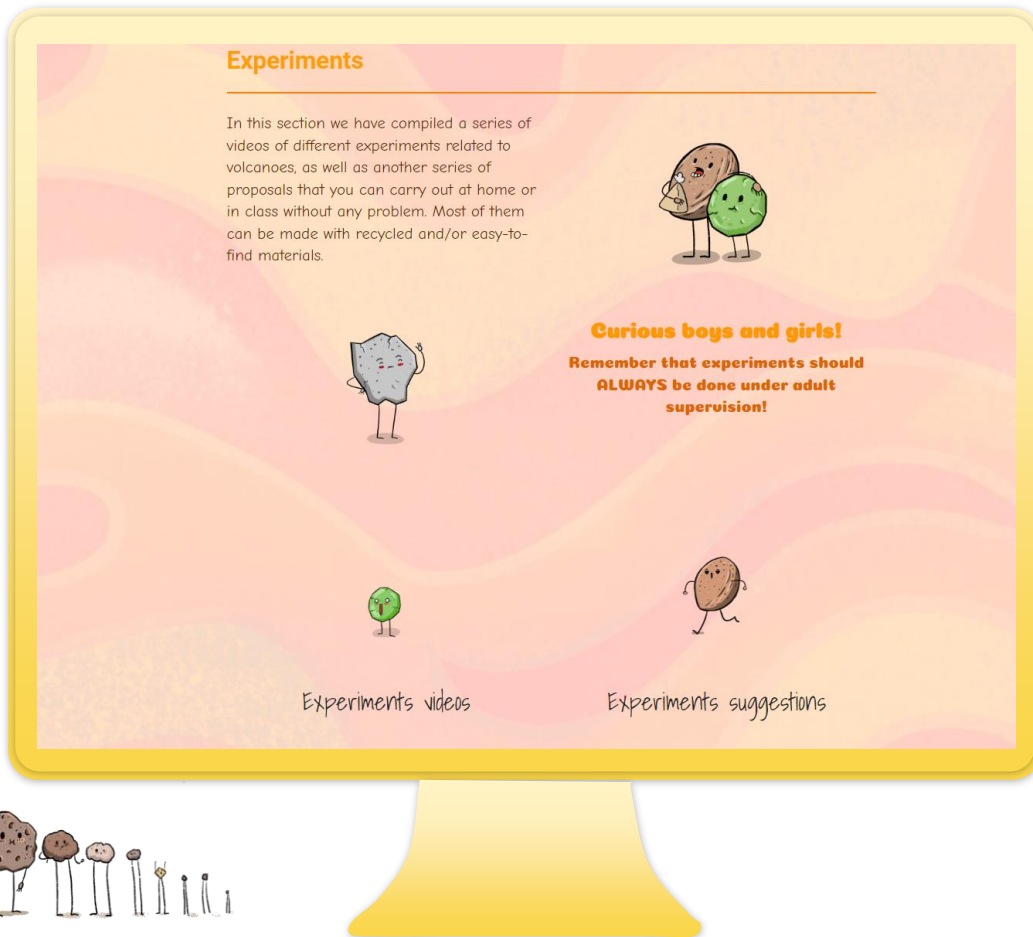
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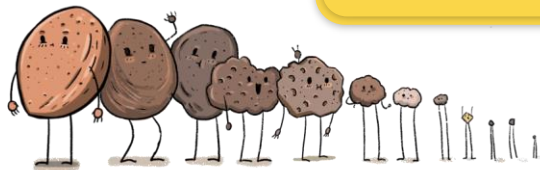
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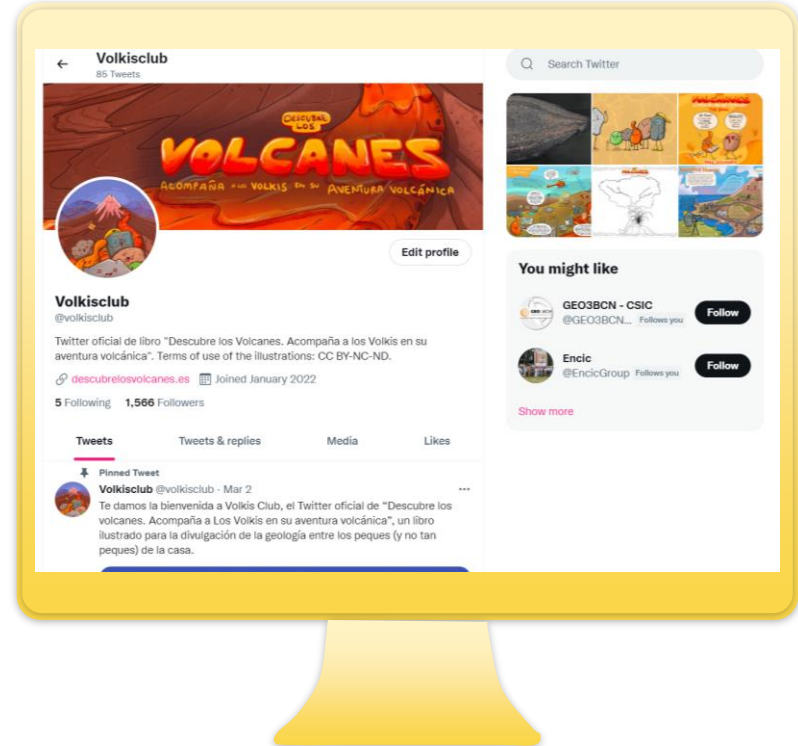
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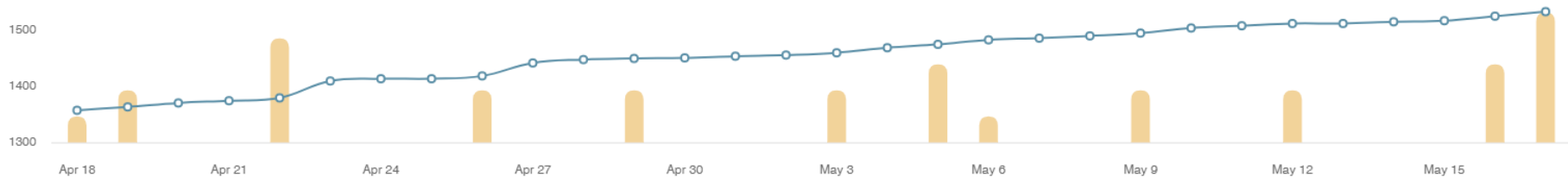
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2nd level

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THANKS!



DISCOVER VOLCANOES

ENJOY WITH THE VOLKIS THEIR VOLCANIC ADVENTURE

Do you have any questions?

You can also find us in:

- volkisclub@gmail.com
- @Volkisclub 
- www.descubrelosvolcanes.es

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