

Volcanoes

Where molten rock erupts from an opening on Earth's surface, volcanoes develop. Most of them form near the edges of tectonic plates.

Molten rock called magma is formed in a few places deep in Earth's crust or even in the mantle. If magma reaches the surface it is called lava. Large volcanoes called stratovolcanoes are built by a series of eruptions, with each one adding a layer of solidified lava and ash on top of the last. Volcanoes are classified as active, dormant, or extinct, based on how often they erupt. An active volcano is one that is known to have erupted in recent history. A volcano that has not erupted recently but might erupt again is dormant. A volcano that has stopped erupting altogether is extinct. Some small volcanoes erupt just once, while a large volcano can erupt thousands of times over its lifetime.

75 percent of the world's active volcanoes are underwater.

Lava flow

Some volcanic eruptions produce runny flows of lava instead of explosions with ash clouds. The lava travels steadily downhill away from the volcano, usually moving at a speed slightly slower than a running person.



Mud pool

Hot steam and other gases escaping near a volcano can produce mud pools at the surface. They are not boiling—the bubbles are formed by escaping gases, which can be very smelly.

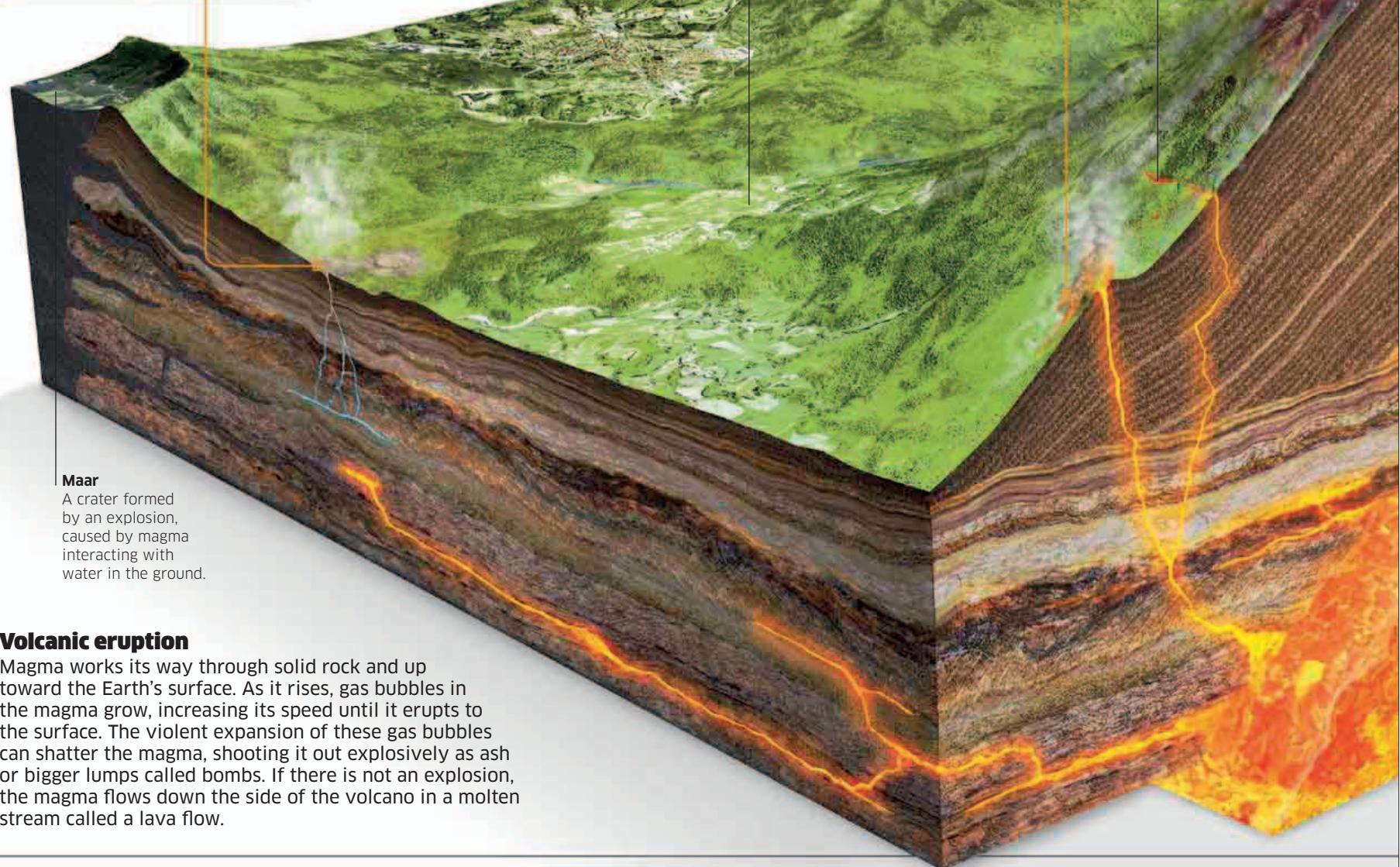


Farmland

Ash from volcanoes can make the soil nearby very fertile.

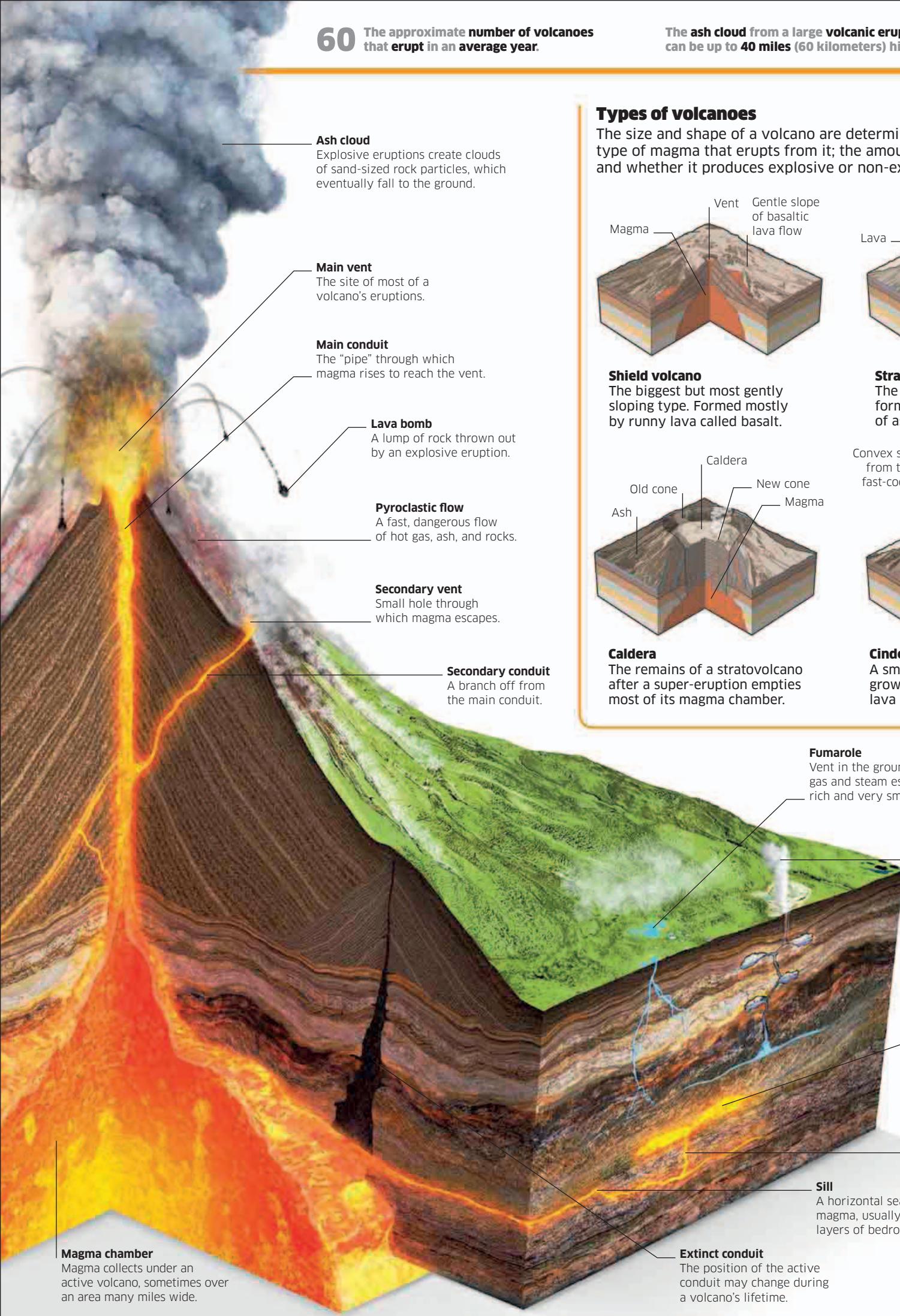
Crater lake
Rainwater can fill old volcanic craters to make new lakes.

Fissure
A crack that sometimes leaks lava.



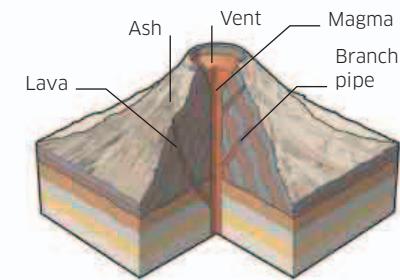
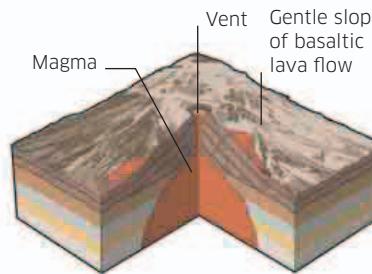
Volcanic eruption

Magma works its way through solid rock and up toward the Earth's surface. As it rises, gas bubbles in the magma grow, increasing its speed until it erupts to the surface. The violent expansion of these gas bubbles can shatter the magma, shooting it out explosively as ash or bigger lumps called bombs. If there is not an explosion, the magma flows down the side of the volcano in a molten stream called a lava flow.



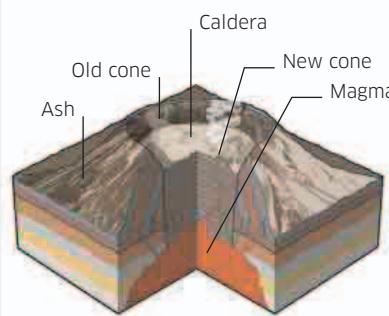
Types of volcanoes

The size and shape of a volcano are determined by several factors: the type of magma that erupts from it; the amount of magma that erupts; and whether it produces explosive or non-explosive eruptions.



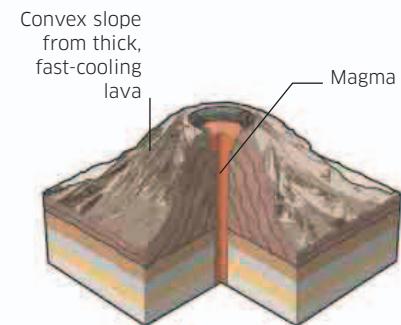
Shield volcano

The biggest but most gently sloping type. Formed mostly by runny lava called basalt.



Stratovolcano

The steepest large volcano, formed of alternating layers of ash and lava.



Caldera

The remains of a stratovolcano after a super-eruption empties most of its magma chamber.

Cinder cone

A small, steep mound that grows where very sticky lava has erupted.

Fumarole

Vent in the ground from which hot gas and steam escape—often sulfur-rich and very smelly.

Geyser

A jet of water driven into the sky by expanding steam.

Laccolith

A pocket of magma that has forced the rock around it to move and make space for it.

Dike

A vertical magma seam.

Sill

A horizontal seam of magma, usually between layers of bedrock.

Extinct conduit

The position of the active conduit may change during a volcano's lifetime.