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Encyclopedic Entry

dome

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A dome is a curved formation or structure. It is shaped like half of a sphere. Imagine cutting an orange in half, and placing it cut-side-down on a table. This is the shape of a dome, although most domes in nature are not perfectly rounded.

Some natural domes develop when magma from deep within the Earth pushes up surface rock layers. This type of geologic dome can form as magma intrudes between two layers of sedimentary rock. The magma creates a dome or triangle shape as it pushes the other layers apart. The hardened magma that forms this type of dome is called laccolith.

Lava domes form as lava hardens atop volcanic vents. In the Chaitn Volcano in Chile, an ongoing eruption that began in 2008 is forming a lava dome next to another one that completely filled the crater when the volcano erupted 9,400 years ago.

Another kind of dome is shaped primarily by weathering and erosion, which cause curved sheets of rock to separate from a large rock mass. The Cima Dome in the Mojave Desert, in the U.S. state of California, was once a mountain. Over time, weathering and erosion wore away the mountain and smoothed it into a rounded dome.

Salt Domes

Salt domes result when rock salt rises through overlying sedimentary rock. Salt accumulates as ancient seas dry up over time. Eventually, sediments form over this layer of salt. Salt is less dense than most other rocks, and it slowly moves upward toward the surface, forming a dome-shaped hill.

One of the most famous salt domes is Avery Island, in the U.S. state of Louisiana. Avery Island is a salt dome surrounded by low-lying swamps of the Mississippi River delta.

Eventually, these salt domes can break through the surface rock layers. Sometimes, the salt beneath a salt dome is enough to create a salt glacier. Salt glaciers behave like ice glaciers, moving slowly down a mountainside. Salt glaciers are most active in the winter, when they are filled with moisture from snow and rain. The Zagros Mountains in Iraq and Iran have formed over a series of salt domes, and have active salt glaciers.

Salt domes are important sites for industry. Salt is a valuable mineral used in the production of plastics, pesticides, preservatives, and fire extinguishing equipment. The salt mines near Avery Island and in the Zagros Mountains are hundreds of years old.

Salt domes are also important for the petroleum industry. Salt domes trap oil between layers of rock. Oil wells can

drill into the salt dome and extract oil. Salt domes on the coast and beneath the Gulf of Mexico often reveal oil deposits.

Architectural Domes

Domes are one of the most familiar features in architecture, or the structure of buildings. One of the most famous domes is the Taj Mahal, a mausoleum in Agra, India.

Domes are frequently used for government buildings, such as the U.S. Capitol in Washington, D.C. They are also used in religious architecture, such as the Dome of the Rock, an Islamic shrine in Jerusalem, Israel; and the Florence Cathedral, a Catholic church in Florence, Italy. (The Florence Cathedral is even nicknamed the Duomo or Brunelleschis Dome, after its architect, Filippo Brunelleschi.)

Russian architecture features domes shaped like onions. The most famous of these onion domes are probably those of St. Basil's Cathedral in Moscow.

Geodesic domes are created using a complex series of triangles. Geodesic domes are an efficient architectural design; they are stronger, lighter, and quicker to construct than more traditional buildings. They also enclose a large amount of space with minimal materials, labor, and energy.

Although geodesic domes enclose a lot of space, the shape and space are not easily used by people. Most furniture and machinery is made for flat walls. Although some geodesic houses have been built, most geodesic domes are used for public aviaries or sports facilities.

VOCABULARY

Term	Part of Speech	Definition
accumulate	*verb*	to gather or collect.
ancient	*adjective*	very old.
architect	*noun*	person who designs buildings or other large structures.
architecture	*noun*	style and design of buildings or open spaces.
aviary	*noun*	enclosed area where birds are kept.
cathedral	*noun*	important regional church.
Catholic	*adjective*	having to do with the Christian denomination with the Pope as its leader.
church	*noun*	building used for spiritual worship and religious practices.
construct	*verb*	to build or erect.
crater	*noun*	bowl-shaped depression formed by a volcanic eruption or impact of a meteorite.
delta	*noun*	the flat, low-lying plain that sometimes forms at the mouth of a river from deposits of sediments.
dense	*adjective*	having parts or molecules that are packed closely together.
dome	*noun*	shape that is half of a sphere.
Dome of the Rock	*noun*	Islamic shrine in Jerusalem, Israel.

Earth	*noun*	our planet, the third from the Sun. The Earth is the only place in the known universe that supports life.
efficient	*adjective*	performing a task with skill and minimal waste.
energy	*noun*	capacity to do work.
erosion	*noun*	act in which earth is worn away, often by water, wind, or ice.
eruption	*noun*	release of material from an opening in the Earth's crust.
extinguish	*verb*	to put out a fire or flame.
extract	*verb*	to pull out.
Filippo Brunelleschi	*noun*	(1377-1446) Italian architect and engineer.
geodesic dome	*noun*	architectural structure shaped like a sphere and made of a complex shell of curved triangle shapes.
geologic	*adjective*	having to do with the physical formations of the Earth.
glacier	*noun*	mass of ice that moves slowly over land.
government	*noun*	system or order of a nation, state, or other political unit.
hill	*noun*	land that rises above its surroundings and has a rounded summit, usually less than 300 meters (1,000 feet).
industry	*noun*	activity that produces goods and services.
labor	*noun*	work or employment.
laccolith	*noun*	magma that is trapped between layers of sedimentary rock, forming a domed hill. Also called laccolite.
lava	*noun*	molten rock, or magma, that erupts from volcanoes or fissures in the Earth's surface.
lava dome	*noun*	feature formed as lava hardens over a volcanic vent.
magma	*noun*	molten, or partially melted, rock beneath the Earth's surface.
mausoleum	*noun*	impressive tomb or burial site.
mineral	*noun*	inorganic material that has a characteristic chemical composition and specific crystal structure.
moisture	*noun*	wetness.
oil	*noun*	fossil fuel formed from the remains of marine plants and animals. Also known as petroleum or crude oil.
oil deposit	*noun*	natural accumulation of petroleum, usually underground or under the ocean floor.
onion dome	*noun*	shape of a half-sphere with a thin, pointed top.
pesticide	*noun*	natural or manufactured substance used to kill organisms that threaten agriculture or are undesirable. Pesticides can be fungicides (which kill harmful fungi), insecticides (which kill harmful insects), herbicides (which kill harmful plants), or rodenticides (which kill harmful rodents.)
petroleum	*noun*	fossil fuel formed from the remains of ancient organisms. Also called crude oil.
plastic	*noun*	chemical material that can be easily shaped when heated to a high temperature.

preservative	*noun*	substance that prevents food or other organic material from rotting or decomposing.
primarily	*adverb*	first or most important.
rain	*noun*	liquid precipitation.
rock	*noun*	natural substance composed of solid mineral matter.
rock salt	*noun*	natural mineral form of salt (sodium chloride.) Also called halite.
salt	*noun*	(sodium chloride, NaCl) crystalline mineral often used as a seasoning or preservative for food.
salt dome	*noun*	structure formed as water evaporates from a salty lake or sea. The remaining salt is buried by sediments, but eventually pierces through the rock, forming a hill.
salt glacier	*noun*	large block of salt from a salt dome that has pierced the surface layer of rock and earth, and is slowly moving down the mountain or hill.
salt mine	*noun*	industrial site where salt is extracted from deposits within the Earth.
sediment	*noun*	solid material transported and deposited by water, ice, and wind.
sedimentary rock	*noun*	rock formed from fragments of other rocks or the remains of plants or animals.
shrine	*noun*	place of worship or spiritual devotion.
snow	*noun*	precipitation made of ice crystals.
sphere	*noun*	round object.
St. Basil's Cathedral	*noun*	(1561) Russian Orthodox church, now a museum, in Moscow, Russia.
swamp	*noun*	land permanently saturated with water and sometimes covered with it.
Taj Mahal	*noun*	(1632) large, white mausoleum complex in Agra, India, built by Shah Jahan for his wife Mumtaz.
volcanic	*adjective*	having to do with volcanoes.
volcanic vent	*noun*	opening in the Earth's crust where lava and gases escape to the Earth's surface or atmosphere.
volcano	*noun*	an opening in the Earth's crust, through which lava, ash, and gases erupt, and also the cone built by eruptions.
weathering	*noun*	the breaking down or dissolving of the Earth's surface rocks and minerals.
well	*noun*	a hole drilled in the Earth to obtain a liquid or gaseous substance.

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