



Caves

Caves 1

What immense cave is found in Mexico and how deep is it?

Answer: The Cave of Swallows that is 400m deep?

About how many feet is 400m?

Answer: 1200 FT

What famous building would fit into this cave?

Answer: The Empire State Building (The building King Kong climbs).

Why does the narrator of the video call the caves one of the last unexplored places on Earth?

Answer: So little is known about caves as a whole and the Cave of Swallows was only discovered two years before men walked on the moon.

Caves 2

How does the Cave Glow Worm survive in a zero light environment?

Answer: It produces strands of mucus covered silk and uses a blue light that it produces to lure prey to get caught in the silk.

How does the Glow Worm produce this light?

Answer: By a chemical reaction formed in a special capsule.

What is this reaction called?

Answer: Bioluminescence

What type of stone covers more than 10% of the Earth's surface?

Answer: Limestone

Caves 3

What is Limestone made of?

Answer: minerals from dead shellfish and old coral reefs.

What is the name of an archipelago near Vietnam that is made from limestone towers?

Answer: Haling Bay

What is an Archipelago?

Answer: a large group or chain of islands or any large body of water with many islands.

How does rain work to form caves?

Answer: Rain absorbs CO₂ and becomes acidic. The acid rain wears away the stone, making caves and other rock structures.

What is this wearing down of rock called? Answer: erosion

Caves 4

What is the largest underground river passage and where is it located?

Answer: Deer Cave in Borneo.

Where is Borneo located?

Answer: Off the Southern coast of Asia and to the North of Australia.

What is the basis for the ecosystem found on the cave floors of Deer Cave?

Answer: The guano of wrinkle-lipped bats.

What is guano?

Answer: Bat poop

Caves 5

How big of poo is the pile found in these caves?

Answer: about 100m

About how many feet is 100m?

Answer: 300FT

What lives as a “carpet” on top of the guano?

Answer: roaches and other insects

Where in the food chain are the roaches?

Answer: They are decomposers.

Caves 6

What is a decomposer?

Answer: An organism, usually a bacterium or fungus, that breaks down the cells of dead plants and animals into simpler substances.

What eats the roaches?

Answer: centipedes

Where are centipedes found in the food chain?

Answer: They are Second level consumers.

In the “guano ecosystem,” what would be an example of a third-level consumer?

Answer: The crabs that eat the centipedes.

Caves 7

Would the crabs be considered a third-level consumer in all other ecosystems?
Why or why not?

Answer: No, because in other ecosystems there are organisms that eat the crabs.

How do the bats confuse predators?

Answer: They fly in the pattern of a donut ring making it difficult for predators to pick out individual bats.

Where are the bats who eat insects located in the food chain?

Answer: They are second level consumers.

Why are Bat Hawks and Peregrine Falcons considered the “fighter jets” of the bird world?

Answer: They are very fast and have great maneuverability.

Caves 8

What do the Peregrine Falcons and Bat Hawks eat?

Answer: They eat bats.

Where are these birds located on the food chain?

Answer: They are third level consumers.

What is echolocation?

Answer: the sonarlike system used by dolphins, bats, and other animals to detect and locate objects by emitting usually high-pitched sounds that reflect off the object and return to the animal's ears or other sensory receptors.

What birds found in caves have echolocation?

Answer: Cave Swiftlets

Caves 9

How do the Swiftlets make their sound for echolocation?

Answer: They make a series of clicks.

How do Swiftlets make their nests?

Answer: By secreting saliva.

What delicacy is made from the nests of Swiftlets?

Answer: Bird's Nest Soup

As stated earlier, water “erodes” rock. How then can the same water “build up” new formations?

Answer: There are minerals in the water that are “left behind” that build up as the water evaporates.

Caves 10

What is the mineral substance left behind by evaporated water called?

Answer: Calcite

What are three common structures found in caves?

Answer: stalactites found on cave ceilings, stalagmites found on the cave floors, and columns that are produced when the two meet.

What did the underwater caves in Mexico provide to the Mayans?

Answer: fresh water

Why was this their only source of fresh water?

Answer: The Yucatan Peninsula has no lakes, rivers, or streams.

Caves 11

How does a lush forest exist in this area where there are no surface fresh water sources?

Answer: The roots of the trees burrow down and get water from the underground streams.

What are cenotes?

Answer: Water-filled limestone sinkholes of the Yucatán that form caves.

How do divers keep find their way out of the underwater caves that they explore?

Answer: They use string

What are squeezes?

Answer: Small, tight openings found in underwater caves.

Caves 12

What is one danger to divers found in underwater caves like the ones in Mexico?

Answer: haloclines

What are haloclines?

Answer: Pockets of fresh water found in salt water caves.

Why are they dangerous?

Answer: These pockets have the appearance of being air, sometimes fooling divers into believing they can take off their masks.

Why do the fresh water and salt water not mix?

Answer: The fresh water has a higher oxygen concentration and “floats” above the salt water.

Caves 13

What is a remipede?

Answer: A crustacean that lives in a low oxygen environment.

Big-eyes are like the _____ of fish.

Answer: Bats

How do cave snakes find their prey?

Answer: They detect body heat.

What are troglobites?

Answer: cave-dwelling organisms that never see light.

Caves 14

What animals are considered to be one of the most specialized in the world and why?

Answer: Thailand Troglabites, called Cave Angel Fish, because they only exist in underwater waterfalls in the Mexican caves. They have specialized hooks that allow them to stay in the falls and special adaptations that allow them to get food from the rushing water.

What species has its entire population found in one cave system?

Answer: The Belizean White Crab

What adaptations has the blind salamander made to their harsh, dark living environment?

Answer: They have special sensory organs that allow them to detect motion so they can hunt and external gills to get oxygen from low-oxygen environment.

What is unique about the Villa Luz cave in Mexico?

Answer: Its walls are white due to high concentration of sulfuric acid found in the water.

Caves 15

What precautions do explorers have to take in order to explore the Villa Luz cave?

Answer: They have to wear respirators filter the air and poison gas detectors to monitor the air.

How is the sulfuric acid found in these caves produced?

Answer: Hydrogen Sulfide bubbles up from the Earth's crust and mixes with oxygen to form the acid.

What are extremophiles?

Answer: Any organism adapted to living in conditions of extreme temperature, pressure, or chemical concentration, as in highly acidic or salty environments.

What extremophile organism is the basis for the food chain in these highly acidic caves?

Answer: snottites

Caves 16

What are the snottites?

Answer: They are chains of bacteria that hang from stalactites.

What do the snottites eat?

Answer: They get energy from the hydrogen sulfide gas.

Where in the food chain would the snottites be found?

Answer: They are primary producers.

What makes this type of primary producer different from primary producers found on the surface?

Answer: They convert chemical energy into food rather than light energy.

Caves 17

In the Villa Luz cave, what is an examples of a first level consumer?

Answer: Larvae of Midges that feed on the snottites.

What would be an example of a second level consumer?

Answer: Blind Cave Mollies that feed on the larvae.

What cave was discovered in 1986 that is considered to be one of the most beautiful in the world?

Answer: Lechuguilla Cave

What type of crystal was discovered in the caves that was left behind because of its immunity to sulfuric acid?

Answer: gypsum