
GLOSSARY

Adaptations – Characteristics that give an organism a better chance of survival.

Archaeologist – A scientist who studies remains of past cultures, both prehistoric and historic.

Archaeology – Study of past cultures through material remains.

Articulated – Joints still connected.

Artifact – An object made and used by humans.

Biped – Any two-footed animal.

Bivalves – An animal (such as a clam) that has a two-valved shell where both valves are the same size and shape. Also called Pelecypods.

Blastoids – A Mississippian fossil consisting of a ½- to 1-inch cuplike body that was attached at the base to a short stem. Each of these bodies were five-sided and had arms radiating from it. Usually only the fossilized bodies are seen today.

Brachiopods – (Lampshells) These sea creatures have two shells (called valves). One valve is usually larger than the other. The top of one valve will curl over the top of the second. This gives them an “oil lamp” shape. Some shells are smooth while others have ridges and grooves that radiate out from the middle of the hinge. Brachiopods are common in rocks of Cambrian to Carboniferous age.

Bryozoans – Aquatic, colonial animals with branching, mossy or fan-like growth. They resemble corals but have more complex nervous, muscular and digestive systems.

Calamites – A Mississippian to Permian fossil plant. A scouring rush that grew to be 40-feet high, it had a ribbed, jointed trunk with leaf whorls at the joints.

Calcium carbonate – A compound, CaCO₃, found in plant ashes, bones, shells, limestone, chalk, and marble.

Carbon – An element. Atoms of carbon are the building blocks of living cells.

Carbonization – A process of forming fossils in which the weight of the sediments squeezes out the water and gas and leaves a residue of carbon (imprint).

Carnivore – A flesh eating or predatory animal or plant.

Cast – A replica of an organism created when minerals use the organism as a mold to create the replica. For example, a shell fills with minerals, the shell dissolves away and the cast (inside of the shell) is left behind.

Cenozoic – The “Age of Mammals”. This geologic era is the most recent.

Climate – The history of rain, snow, and temperature for an area. The average weather.

Compass – A device for determining directions. It uses a magnetic needle that points to magnetic north.

Competition – Two or more organisms attempting to occupy or use the same niche or resource in an environment at the same time.

Coral – A small, soft-bodied animal that secretes a hard exterior skeleton. Corals can be found individually (solitary) or in huge colonies that form coral reefs. Corals thrive in warm, shallow seas. One species of coral looks like the horn of a cow. Another species looks like a human brain. Their common names are derived from these images.

Continental Drift – The theory that continents have moved in relation to one another.

Core sample – Cylindrical core retrieved from a hollow steel pipe that is drilled into rock or sediment and brought to the surface for study.

Corrolite – Fossilized dung.

Crinoids – (sea lilies) Flower-like echinoderms. They have a stalk made of calcite disks stacked on top of each other. The disks can be circular or star-shaped. The tops contained a circle of colorful arms that resembled the head of a flower. Fossil remains are found in limestone from Ordovician to Recent times. Whole fossils are rare.

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Cycads – A fossil plant from Permian to Recent times. Cycads had short, squat trunks with a crown of large, palm-like leaves

Datum – Something used as the basis for reasoning, inference, calculating, or measuring. A reference point or origin for mapping.

Echinoderms – (crinoids, blastoids, starfishes, sea lilies, and sea urchins) Sea animals covered with calcite plates or spines. They could be free-swimming or found attached to the sea bottom. They usually have a five-fold radial symmetry.

Ecology – The study of organisms and their interactions with their environment.

Ecosystem – A system made up of a community of animals, plants, and bacteria and their interrelated physical and chemical environment.

Element – A substance made up of only one kind of atom.

Era – An interval of geologic time shorter than an eon. An era includes two or more periods. There are four major eras: Precambrian, Paleozoic, Mesozoic, and Cenozoic.

Erosion – The gradual wearing away and transportation of materials, usually by water, wind, or ice.

Eon – The largest formal unit of geologic time. There are three eons: the Archean, Proterozoic, and Phanerozoic.

Epoch – A division of geologic time less than a period and greater than an age.

Extinct – When all members of a species have died out.

Extralimital – No longer living in the local area.

Extrusion – Something (rock, fossil, etc.) that is forced, pressed, or pushed out.

Faulting – A fracture in the earth's crust (fault) that causes the land on one side of the fault to be raised

above the land on the other side.

Fauna – The animals of a specified region or time.

Flora – The plants of a specified region or time.

Food Chain – a sequence of organisms in a community where each member of the chain feeds on the member below it. The chain moves from plants that make their own food to herbivores to carnivores.

Food Web – How plants, predators and prey interact. The interaction of all food chains found in an ecological community.

Fossil – A remnant, impression, or trace of an animal or plant from a former geologic time that has been preserved in the earth's crust.

Fossilization – The process of becoming a fossil.

Gastropod – (snails) Most gastropods have coiled shells, either flat (like a wheel) or spiral (like a garden snail).

Giant Ground Sloth – With a body the size of a cow, they pulled leaves and twigs to their mouths with their long-clawed hands and long tongues. Found from the Pliocene to Pleistocene epoch.

Geologic Column – A column representing the eras and periods of time with their major events and changing life forms.

Geologic time – The total time involved since formation of the earth to the present time.

Geologist – A scientist who studies rocks, including how and when they were formed, the minerals they contain, and how they have changed through time.

Geology – The science dealing with the physical nature and history of the earth.

Graptolites – Tiny sea creatures that lived in little cups joined together into strings. They are usually found in shales and slates of Cambrian to Carboniferous age.

Habitat – The place or type of site where a plant or

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animal naturally or normally lives and grows.

Herbivore – An animal that only eats plants.

Index Fossils – An indicator of a particular time in the Earth's history.

Inference – Assumption based on an observation.

In situ – In its original position or place.

Lepidodendron – A Pennsylvanian fossil club moss. It was tall (100-feet high), branching, with slender leaves and had distinctive diamond shaped leaf scars along the trunk.

Limestone – A sedimentary rock made of layers of carbonated sediments (sea life) that thrived in a warm shallow sea. Fossils are often found in this type of rock.

Lycopods – Scale trees. Vascular plants found from the Devonian to Recent periods. They had simple leaves in spirals. The stem was not jointed. Fossils are common in coal-bearing strata.

Mammoth – An extinct elephant having a sloping back and plated teeth that resembled a washboard. Mammoths were grazers and fed on grasses, sedges, and shrubs.

Mastodon – An extinct elephant having a straight back. They were slightly smaller than the Mammoth. Their teeth exhibit a pattern of cone-shaped cusps ideal for browsing. They ate leaves and branches gathered with their trunk from their forest habitat.

Megafauna – Animals weighing more than 100 pounds when alive. The Mammoth, Mastodon, Giant sloth, and Short-faced cave bear would have been megafauna.

Mesozoic – This geologic era represents the time of "Middle" life. The Mesozoic Era lasted from 245 to 66 million years ago.

Microfauna - Animals weighing less than 100 pounds.

Midden – A refuse heap.

Migrate – To move from one region, climate or environ-

ment to another.

Mineral – A substance found in the earth that always has the same properties. These properties include color, hardness, shininess, and the way the mineral breaks or splits.

Mississippian Period – 345 to 310 million years ago when Kentucky was covered by a warm, shallow sea in which corals, brachiopods, crinoids, blastoids, bryozoans, and foraminifera (a protozoan) flourished. The sedimentary rocks and most fossil remains of the Mammoth Cave region are from this time period.

Mold – A cavity in which a substance is shaped. A fossil used to create a replica, or cast.

Natural Selection – Survival of the fittest.

Observation – Seeing and recording a fact.

Omnivore – An organism that eats both plants and animals.

Orienteering – Using a map and compass to navigate your way between checkpoints along an unfamiliar course.

Overthrust – Caused when pressure pushes rock strata up until one side folds over onto the second side. This will cause younger rock layers to be located under older layers.

Paleoenvironment – An ancient environment reconstructed by studying fossils and the rocks in which they were preserved.

Paleontologist – A scientist who studies fossil remains to learn about life of the ancient past.

Paleontology – The scientific study of prehistoric plants and animals in their geologic context.

Paleozoic – A geologic era that is marked by the culmination of all classes of invertebrates except insects and the appearance of seed-bearing plants, amphibians and reptiles. The Paleozoic era is divided into seven periods designated by inundations of seas. The Mississippian and Pennsylvanian periods of Kentucky occurred

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during the Paleozoic era.

Pangaea – A hypothetical “super” continent. It is believed that Pangaea broke apart about 200 million years ago, during the Mesozoic Era, to form the present day continents.

Pelecypods – Also called Bivalves. A common fossil in marine rock. Pelecypods have shells with two valves that are the same size and shape. The shells often show growth lines, and radiating ridges and grooves, useful for identification. Oysters, mussels, and clams are living types.

Pennsylvanian Period – 310 to 280 million years ago. This was the development of deltas, lowlands, and great swamps. Great trees that formed the coal forests were prominent. Most common were the scale trees (lycopsods), seed ferns, horsetails, and cordaites. The coal regions of eastern and western Kentucky developed during this period.

Period – A division of geologic time longer than an epoch and included in an era. A period is usually set off by a significant or striking quality, change or series of events.

Petrification – A process that replaces living materials (wood or bone) with mineral matter. Organic matter is thus turned to stone.

Petrify – To convert into stone or a stony substance.

Precambrian Era – The oldest and longest of the eras. It began when Earth was first formed 4.6 billion years ago. Few fossils of this era have been found.

Predation – The behavior of capturing and feeding on another organism.

Predator – An organism that captures and feeds on other organisms.

Prehistoric – The time before recorded history.

Prey – An organism that is hunted and eaten by another organism.

Principle of Horizontality – States that sediments are placed in horizontal layers.

Principle of Superposition – Principle which describes the layering of rocks. It states the oldest rock is on the bottom and the youngest is on the top.

Quadruped – An animal with four feet.

Radioactive Dating – A dating method that measures the amount of radioactive decay that has taken place in the rocks being studied.

Relative Dating – A method of dating rock layers by their relationships or proximity to each other. Both archaeologists and paleontologists use relative dating.

Relative Time Scale – Placing rocks and events in the chronological order in which they occurred.

Replica – A duplicate, close copy or reproduction.

Sandstone – A sedimentary rock made of layers of compressed and cemented sand grains.

Sediment – The material that settles to the bottom of a liquid. It is transported and deposited by water, wind or glaciers.

Sedimentary Rocks – A type of rock formed of mechanical, chemical, or organic sediments transported from their source and deposited as sediment in layers on lake or river bottoms, river sandbars, beaches, and oceans. The sediments can be formed of fragments, formed by precipitation or solution, or formed from inorganic remains (shells or skeletons) of organisms.

Seed Ferns – An extinct plant that developed seeds on its leaves and grew to a height of nine feet. Flowering plants may have evolved from seed ferns. Most fern-like fossils are not true ferns, but seed ferns.

Shale – A sedimentary rock made of layers of clay, mud or silt.

Short-Faced Bear – A flesh-eater that lived 1,000,000 to 10,000 years ago. The most powerful land predator of its day, it combined size, strength, and speed with stout

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fangs and vise-like jaws to hunt large prey such as bison and giant ground sloths.

Sinkhole – A surface depression created by underground collapse.

Solution – A substance dissolved in another substance. Sugar dissolved in water is “in solution”.

Species – The division of animal classification below Genus. A group of animals having common attributes, designated by a common name, that has the same structure, and that can breed together.

Strata – Layers of material. Often one of a number of parallel layers one upon another.

Stratigraphy – The study of layered rocks, their distribution, origin, fossil content, and relative age.

Stratification – The arrangement of rocks in distinct layers or strata, resulting from the action of water or wind. Common in sedimentary rocks.

String Grid – A square meter (approximately three square feet) frame divided into small ten-centimeter squares (less than four inches).

Succession – The things that follow each other in sequence. For an ecosystem, it is the unidirectional change created as competing organisms and (especially) the plants respond to and modify the environment. For example, an open field would have a development from weeds to grass to forest community, in that order.

Symbiosis – When two very different organisms live together and each receives what it needs to survive from the other. For example, Lichen is an algae and fungus together.

Tapir – A browser related to rhinoceroses and appearing at the same time. Abundant in North America during the Pleistocene epoch and still found in South America and Asia.

Topography – Description of the physical characteristics of an area that shows relative positions and elevation.

Trace – Fossil signs left behind such as footprints, nests, and burrows.

Trilobites – A large group of arthropods abundant in the Paleozoic seas. They had segmented exoskeletons divided into three lobes.

Uplifting – Caused when pressure pushes rock strata upwards until it breaks, leaving the rock layers exposed on their end. The rock strata are now laying vertically instead of horizontally.

Vertebrates – Animals with backbones such as fish, reptiles, and mammals.

Weathering – The disintegration and breakdown of rocks at or near the earth’s surface.

Mechanical weathering – occurs when rocks are broken into smaller and smaller pieces. This can occur by the activity of plant roots breaking rocks apart; by freezing and thawing that produces wedges in rocks; by physical banging of hard materials; or by rubbing against the rock by sediments found in water or the air.

Chemical weathering – occurs as water carrying other chemical elements alters the rocks. An example is carbonic acid. Water combines with carbon dioxide to produce a weak acid (carbonic acid). The carbonic acid is carried to the point of contact by the water. When the carbonic acid comes in contact with limestone rock a chemical reaction is produced which dissolves the rock.