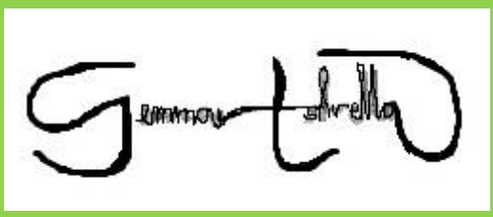
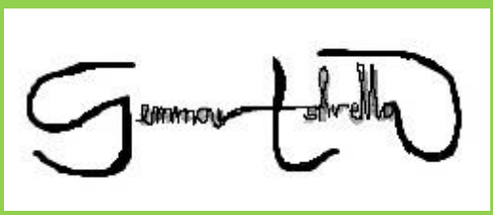
BIOLOGICAL TERMINOLOGIES

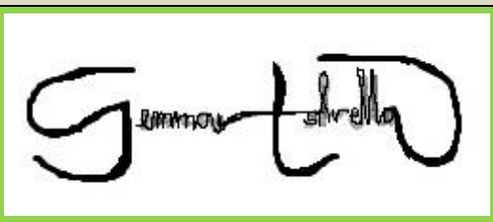
Absorption -- The taking in of water and dissolved minerals and nutrients across cell membranes. Contrast with ingestion.
Abyssal plain -- The ocean floor offshore from the continental margin, usually very flat with a slight slope.
Accrete -- v. To add terrains (small land masses or pieces of crust) to another, usually larger, land mass.
Adaptation -- Change in an organism resulting from natural selection; a structure which is the result of such selection.
Adult -- The mature stage of an organism, usually recognized by the organisms attaining the ability to reproduce.
Adventitious roots -- A root that grows from somewhere other than the primary root, for example, roots that arises from stems or leaves.
Aerobic -- Pertaining to the presence of free oxygen. Aerobic organisms require oxygen for their life processes.
Alginate -- component of the cell walls of many rhodophytes and kelps. Alginates have an affinity for water, and so help to slow desiccation when the algae are exposed to the air; they are commercially important in the production of paper, toothpaste, beer, and frozen foods.
Alkaline -- Term pertaining to a highly basic, as opposed to acidic, substance. For example, hydroxide or carbonate of sodium or potassium.
Allochthonous -- Refers to something formed elsewhere than its present location. Antonym of autochthonous.
Alluvial fan -- n. A fan-shaped deposit of sand, mud, etc. Formed by a stream where its velocity has slowed, such as at the mouth of a ravine or at the foot of a mountain.



Alluvium -- n. A deposit of sand, mud, etc., formed by flowing water; alluvial - adj.
Alternation of generations -- Life cycle in which haploid and diploid generations alternate with each other.
Amber -- Fossilization where the organism is entrapped in resin and preserved whole.
Amino acid -- unit molecule from which proteins are constructed by polymerization.
Ammonite -- n. One of a group of extinct, shelled, marine cephalopods related to squids; cephalopods are within the larger group Mollusca, which includes clams and snails. Ammonite shells were generally coiled, though some non-coiled forms did exist. The group went extinct 65 million years ago at the end of the Cretaceous Period.
Amoeboid -- Having no definite shape to the cell, able to change shape.
Amphiesma -- The outer covering of a dinoflagellate, consisting of several membrane layers.
Anaerobic -- Pertaining to the absence of free oxygen. Anaerobic organisms do not require oxygen for their life processes; in fact oxygen is toxic to many of them. Most anaerobic organisms are bacteria or Achaeans.
Anagensis -- Evolutionary change along an unbranching lineage; change without speciation.
Ancestor -- Any organism, population, or species from which some other organism, population, or species is descended by reproduction.
Andesite -- Igneous volcanic rock, less mafic than basalt, but more mafic than dacite; rough volcanic equivalent of diorite.



Anemophily -- Seed plants which are pollinated by wind are said to be anemophilous.
Angiosperm -- n. A group of plants that produce seeds enclosed within an ovary, which may mature into a fruit; flowering plants.
Anther -- The pollen producing tip of a stamen; part of a flower. More info?
Antheridium -- The organ on a gametophyte plant which produces the sperm cells.
Anthophyte -- a flowering plant or any of its closest relatives, such as the Bennettitales, Gnetales, or Pentoxylales.
Anticline -- A fold of rock layers that is convex upwards. Antonym of syncline.
Aperture -- Small opening, for example the opening in the test of a foram.
Apical meristem -- Group of cells at the growing tip of a branch or root. It divides cells to create new tissues.
Archegonium -- The organ on a gametophyte plant which produces the egg cell, and nurtures the young sporophyte.
Archipelago -- n. A group of islands; an expanse of water with scattered islands.
Asexual reproduction -- A type of reproduction involving only one parent that usually produces genetically identical offspring. Asexual reproduction occurs without meiosis or syngamy, and may happen though budding, by the division of a single cell, or the breakup of an entire organism into two or more parts.
Asphalt -- A dark bituminous substance found in natural beds. Residue from petroleum distillation.



ATP -- "adenosine triphosphate". A relatively stable, high energy molecule used to fuel chemical reactions within cells.

Autochthonous -- Refers to something formed in its present location. Antonym of allochthonous.

Autotroph -- Any organism that is able to manufacture its own food. Most plants are autotrophs, as are many protists and bacteria. Contrast with consumer. Autotrophs may be photoautotrophic, using light energy to manufacture food, or chemoautotrophic, using chemical energy.

Avalonia -- n. A separate plate in the Early Paleozoic consisting of much of Northern Europe, Newfoundland, Nova Scotia, and some coastal parts of New England.

Axil -- The angle formed between a leaf stalk and the stem to which it is attached. In flowering plants, buds develop in the axils of leaves.

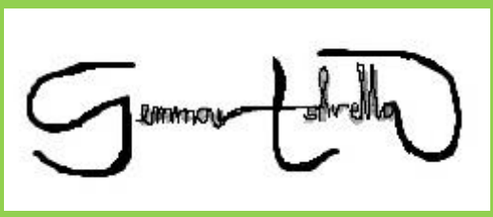
Bacteriophage -- Virus which infects and destroys a bacterial host. Some phages, however, will incorporate their DNA into that of their host, and remain dormant for an extended period. For this reason, they have become essential tools of genetic engineers.

Baltica -- n. A separate continental plate of the Early Paleozoic composed of the United Kingdom, Scandinavia, European Russia and Central Europe; named for the Baltic Sea.

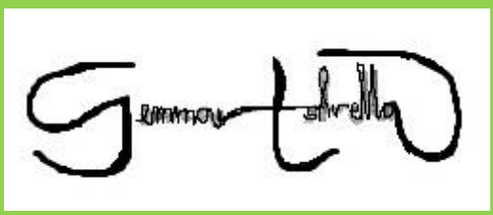
Banded Iron Formation -- n. Rock consisting of alternating light and dark layers of iron-rich chert (the dark layers have more iron minerals) formed from 3.8 to 1.7 billion years ago.

Barachois -- n. - A lagoon separated from the ocean by a sandbar, which was deposited in a delta after the last glaciations. The term is used in Atlantic Canada, where the landform is common.

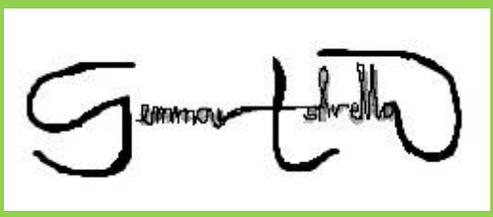
Barrier island -- n. A long, narrow island that runs parallel to the mainland and is separated from it by a lagoon.



Basal group -- The earliest diverging group within a clade; for instance, to hypothesize that sponges are basal animals is to suggest that the lineage(s) leading to sponges diverged from the lineage that gave rise to all other animals.
Basalt -- Highly mafic igneous volcanic rock, typically fine-grained and dark in color; rough volcanic equivalent of gabbros.
Basement rock -- n. The oldest rocks in a given area; a complex of metamorphic and igneous rocks that underlies the sedimentary deposits. Usually Precambrian or Paleozoic in age.
Basin -- n. Any large depression in which sediments are deposited.
Basin and Range Province -- n. One of the most extensive systems of fault-bounded mountains separated by sediment-filled valleys, extending across Idaho, Oregon, Nevada, Utah, Arizona, New Mexico, California, and northern Mexico. Basin and Range topography The surface features typical of the Basin and Range Province.
Bedrock -- n. The general term referring to the rock underlying other unconsolidated material, i.e. Soil.
Benthic -- Organisms that live on the bottom of the ocean are called benthic organisms. They are not free-floating like pelagic organisms are.
Bering Land Bridge -- n. The vast tundra plain that was exposed between Asia and North America during the Last Glacial Maximum, about 21,000 years ago; it served as a migration route for people, animals, and plants. Also known as Beringia.
Binomial nomenclature -- n. A method of identifying and naming organisms using two names. The first name is the genus name, and the second is the species name. Names are usually Latin or Greek in origin.



Biochemistry -- the study of those molecules used and manufactured by living things.
Biological/biotic factors -- Living factors such as decomposers, scavengers and predators.
Bioluminescence -- the production of light by a chemical reaction within an organism. The process occurs in many bacteria and protists, as well as certain animals and fungi.
Biomes -- The world's major communities, classified according to the predominant vegetation and characterized by adaptations of organisms to that particular environment. MORE?
Biostratigraphy -- n. The study of rock layers (e.g., distribution, environment of deposition, age) based on their fossils; biostratigraphic- adj.
Biostratinomy -- The study of what happens between the death of an organism and burial. Part of taphonomy.
Bioturbation -- n. The disturbance of sediment by organisms, e.g. Burrows, trails, or complete mixing.
Bipinnate -- Describing a pinnate leaf in which the leaflets themselves are further subdivided in a pinnate fashion.
Bisporangiate -- When a flower or cone produces both megaspores and microspores, it is said to be bisporangiate. Most flowers are bisporangiate.
Blade -- Any broad and flattened region of a plant or alga, which allows for increased photosynthetic surface area.
Blueschist -- Metamorphic rock formed under great pressures, but not so great temperatures.
Boreal -- adj. Describes the northern biotic area that is dominated by tundra, taiga, and coniferous forests.



Brackish -- adj. Slightly salty.

Bract -- Any reduced leaf-like structure associated with a cone or flower.

Braided river -- n. A river characterized by a network of channels that split and entwine, rather than a single channel for water and sediment. Braided rivers are common in upland areas closer to mountain fronts where the slope, and consequently water velocity, lessens and the river begins to deposit sediment. Braiding is the result of the channel becoming clogged with sediment.

Breccia -- n. A rock composed of angular fragments of older rocks; distinguished from a conglomerate in that the component rocks are not rounded and worn.

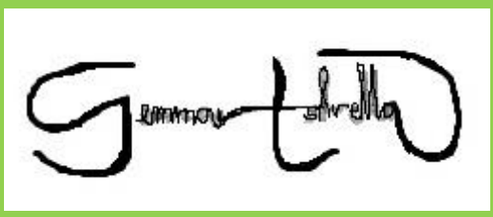
Brevitoxin -- neurotoxin produced by the dinoflagellate Ptychodiscus brevis.

Bryophyte -- Plants in which the gametophyte generation is the larger, persistent phase; they generally lack conducting tissues. Bryophytes include the Hepaticophyta (liverworts), Anthocerotophyta (hornworts), and Bryophyta (mosses).

Calcareous -- adj. Term used to describe a structure, secreted by an organism that consists of or contains calcium carbonate (caco3), e.g., the shell of a bivalve.

Calcite -- A common crystalline form of natural calcium carbonate, caco3, that is the basic constituent of limestone, marble, and chalk. Also called calcspar.

Calcium carbonate -- n. A white compound, caco3, that occurs naturally as marble, chalk, limestone, and calcite. It is used by many marine invertebrates, such as corals and echinoderms, and by protists, such as coccolithophorids, to construct their exoskeletons. Calcium carbonate, in the form of calcite, is also incorporated into the eggshells of amniotes, except for turtles whose eggs are composed of aragonite



(caco3 + magnesium).

Caldera -- n. A large circular volcanic depression, often originating due to collapse.

Caliche -- n. A sedimentary deposit commonly made of calcium carbonate and formed from the leaching of minerals from the top layers of soil. Caliche deposits characterize arid and semi-arid environments.

Canadian Shield -- n. A broad area of Precambrian rock that covers most of Canada, from the Great Lakes to the Arctic Ocean and from Labrador to Northwest Territories. It forms the center of the original North American craton (Laurentia) around which the rest of the continent was added.

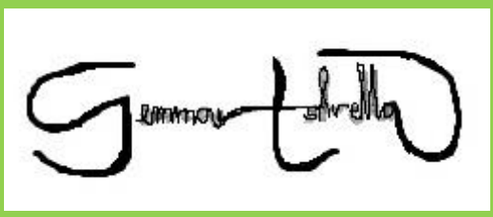
Canopy -- Layer of vegetation elevated above the ground, usually of tree branches and epiphytes. In tropical forests, the canopy may be more than 100 feet above the ground.

Capsid -- The protein "shell" of a free virus particle.

Carbohydrates -- class of biochemical compounds which includes sugars, starch, chitin, and steroids.

Carbon film -- Thin layer of carbon remains of past life found in sedimentary rocks.

Carbonate -- n. A mineral composed mainly of calcium (Ca) and carbonate (CO3) ions, may also include magnesium (Mg), iron (Fe) and others. N. Rock or sediments derived from debris of organic materials composed mainly of calcium and carbonate (e.g., shells, corals, etc.) Or from the inorganic precipitation of calcium (and other ions) and carbonate from solution (seawater). For example, limestone or dolomite. Carbonate platform - n. A broad (hundreds of meters), flat, shallow submarine expanse of carbonate rock, more common in the early-middle Paleozoic. Carbonate bank – n.



A narrow (tens of meters), fairly flat, shallow, submarine plateau of carbonate rock, more common from the middle-late Paleozoic to the present, e.g., the Bahama Banks.

Carnivore -- Literally, an organism that eats meat. Most carnivores are animals, but a few fungi, plants, and protists are as well.

Carpel -- A unit of the pistil; it is evolutionarily a modified leaf.

Casts -- Fossils formed when water containing minerals leaks into a mold. The minerals harden to form a copy of the original structure or organism.

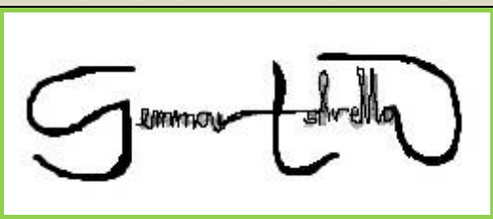
Cataphyll -- In cycads, a scale-like modified leaf which protects the developing true leaves.

Cathaysian terranes -- n. A set of small landmasses that developed in tropical to subtropical latitudes on the eastern side of Pangea during the Permian and Triassic, includes modern North China (Sino-Korea), South China (Yangtze), Eastern Qiangtang, Tarim, and Indochina.

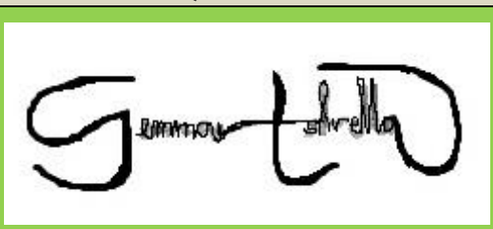
Cathodoluminescence -- n. An analytical technique used in geology and paleontology to analyze the different minerals in a sample, or diagenetic history of a sample — how crystals grew, were deformed, and were replaced. A beam of electrons is fired at a sample to produce visible light, which can then be used to interpret the mineralogical and diagenetic history of the sample.

Cell -- Fundamental structural unit of all life. The cell consists primarily of an outer plasma membrane, which separates it from the environment; the genetic material (DNA), which encodes heritable information for the maintenance of life; and the cytoplasm, a heterogeneous assemblage of ions, molecules, and fluid.

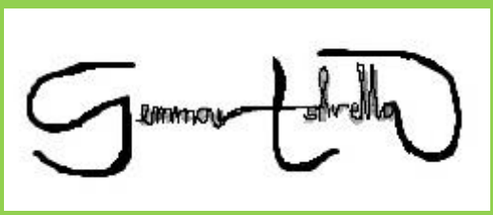
Cell cycle -- Complete sequence of steps which must be performed by a cell in order to replicate itself, as seen from mitotic event to mitotic event. Most of the cycle consists of a



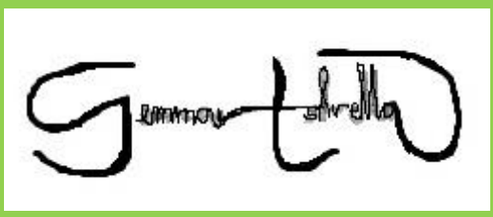
growth period in which the cell takes on mass and replicates its DNA. Arrest of the cell cycle is an important feature in the reproduction of many organisms, including humans.
Cell membrane -- The outer membrane of a cell, which separates it from the environment. Also called a plasma membrane or plasmalemma.
Cell wall -- Rigid structure deposited outside the cell membrane. Plants are known for their cell walls of cellulose, as are the green algae and certain protists, while fungi have cell walls of chitin.
Cellulose -- carbohydrate polymer of the simple sugar glucose. It is found in the cell walls of plants and green algae, as well as dinoflagellates. Cellulose is the most abundant compound on earth that is manufactured by living things.
Cenote -- n. Mayan word for a sinkhole formed when fresh water dissolves limestone below the surface and the overlying rocks collapse.
Chalk -- A soft compact calcite, caco3, with varying amounts of silica, quartz, feldspar, or other mineral impurities, generally gray-white or yellow-white and derived chiefly from fossil seashells.
Character -- Heritable trait possessed by an organism; characters are usually described in terms of their states, for example: "hair present" vs. "hair absent," where "hair" is the character, and "present" and "absent" are its states.
Chert -- Hard, dense sedimentary rock composed of interlocking quartz crystals and possibly amorphous silica (opal). The origin of the silica is normally biological, from diatoms, radiolaria or sponge spicules. Synonymous with flint.
Chitin -- n. A carbohydrate polymer found in the cell walls of fungi and in the exoskeletons of arthropods, which provides strength for support and protection; chitinous- adj.
Chlorophyll -- n. The green-colored pigment that absorbs light during photosynthesis, often found in plants, algae, and some bacteria; it includes a porphyrin ring, and often has a long



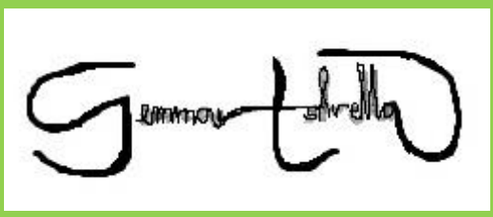
hydrophobic tail. More info?
Chloroplast -- A chlorophyll-containing plastid found in algal and green plant cells.
Chromosome -- Linear piece of eukaryotic DNA, often bound by specialized proteins known as histones.
Cimmerian terranes -- n. An archipelago of small landmasses that developed in tropical and subtropical latitudes on the eastern side of Pangea during the Triassic, blocks that comprised it include modern Turkey, Iran, Afghanistan, Tibet, and Malaysia; also called Cimmeria.
Clade -- A monophyletic taxon; a group of organisms which includes the most recent common ancestor of all of its members and all of the descendants of that most recent common ancestor. From the Greek word "klados", meaning branch or twig.
Cladogenesis -- The development of a new clade; the splitting of a single lineage into two distinct lineages; speciation.
Cladogram -- A diagram, resulting from a cladistic analysis, which depicts a hypothetical branching sequence of lineages leading to the taxa under consideration. The points of branching within a cladogram are called nodes. All taxa occur at the endpoints of the cladogram.
Clast -- n. An individual grain or constituent of a rock; clastic- adj. Describes a rock or sediment composed mainly of fragments of preexisting rocks or minerals that have been transported some distance from their place of origin, e.g., sandstone, shale.
Clone -- An identical copy of an organism. Most plants, fungi, algae, and many other organisms naturally reproduce by making clones of them as a form of asexual reproduction.



Coenocytic -- Condition in which an organism consists of filamentous cells with large central vacuoles, and whose nuclei are not partitioned into separate compartments. The result is a long tube containing many nuclei, with all the cytoplasm at the periphery.
Collagen -- long proteins whose structure is wound into a triple helix. The resulting fibers have a high tensile strength. Collagen is a primary component of mammalian hair.
Colonial -- Condition in which many unicellular organisms live together in a somewhat coordinated group. Unlike true multicellular organisms, the individual cells retain their separate identities, and usually, their own membranes and cell walls.
Columella -- A small column of tissue which runs up through the center of a spore capsule. It is present in hornworts, mosses, and some rhyniophytes.
Compactions -- Fossils that have undergone some degree of flattening of their three-dimensional structure.
Compound leaves -- n. Leaves with two or more leaflets attached to a single leaf stem.
Compression -- Fossil formed when an organism is flattened (compressed) and a thin film of organic material from its body is left in the rock.
Concretion -- n. A hard, rounded mass, commonly of silica, calcite, dolomite, iron oxide, pyrite, or gypsum, that formed within a rock from the precipitation of these minerals around a nucleus, such as a leaf, bone, shell, or fossil, and ranging in diameter from centimeters to meters.
Conglomerate -- A coarse-grained sedimentary rock, with clasts larger than 2 mm.
Congo craton -- n. A separate continental plate that rifted from the supercontinent Rodinia in the Late Precambrian; contained a large part of north-central Africa.



Consumer -- Any organism which must consume other organisms (living or dead) to satisfy its energy needs. Contrast with autotroph.
Continental crust -- The Earth's crust that includes both the continents and the continental shelves.
Continental margin -- n. The ocean floor from the shore of continents to the abyssal plain.
Continental rise -- n. Part of the continental margin; the ocean floor from the continental slope to the abyssal plain. The continental rise generally has a gentle slope and smooth topography.
Continental shelf -- n. The part of the continental margin from the coastal shore to the continental slope; usually extending to a depth of about 200 meters and with a very slight slope, roughly 0.1 degrees; includes continental and oceanic sediments down to the ocean floor.
Continental slope -- n. Part of the continental margin; the ocean floor from the continental shelf to the continental rise or oceanic trench. Usually to a depth of about 200 meters. The continental slope typically has a relatively steep grade, from three to six degrees.
Contractile vacuole -- In many protists, a specialized vacuole with associated channels designed to collect excess water in the cell. Microtubules periodically contract to force this excess water out of the cell, regulating the cell's osmotic balance.
Convergence -- Similarities which have arisen independently in two or more organisms that are not closely related. Contrast with homology.
Copal -- Brittle aromatic yellow to red resins of recent or fossil origin, obtained from tropical trees.



Coprolites -- Fossilized feces.

Core -- That portion of the interior of the Earth that lies beneath the mantle, and goes all of the way to the center. The Earth's core is very dense, rich in iron and the source of the magnetic field.

Cotyledon -- n. The "seed leaves" produced by the embryo of a seed plant that serve to absorb nutrients packaged in the seed, until the seedling is able to produce its first true leaves and begin photosynthesis; the number of cotyledons is a key feature for the identification of the two major groups of flowering plants.

Craton -- n. A part of the Earth's crust that has attained stability and has been little deformed for a long period of time, refers only to continents; cratonic- adj.

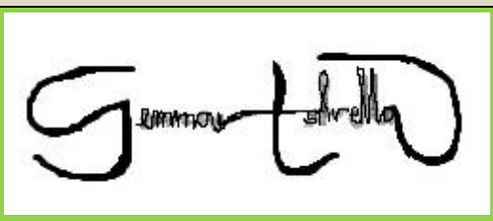
Cretaceous Western Interior Seaway -- n. The epicontinental sea that formed as marine waters from the north spread over North America from around 130 to 70 million years ago (Ma), at its peak in the Middle Cretaceous (~ 90 Ma) it extended from present-day Utah to the Appalachians and from the Arctic to the Gulf of Mexico; also referred to as the Western Interior Seaway

Cross-bedding -- n. The arrangement of sedimentary beds tilted at different angles to each other, indicating that the beds were deposited by wind or flowing water.

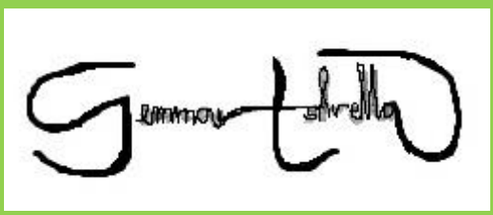
Crown group -- All the taxa descended from a major cladogenesis event, recognized by possessing the clade's synapomorphy. See: stem group.

Crust -- n. The outermost layer of the Earth, varying in thickness from about 10 kilometers (6 miles) below the oceans, to 65 kilometers (about 40 miles) below the continents; represents less than 1 percent of the Earth's volume.

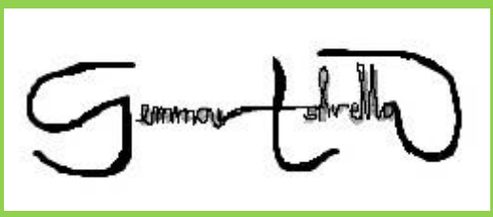
Cyst -- n. A small, capsule-like sac that encloses an organism in its resting or larval stage, e.g., a resting spore of an alga.



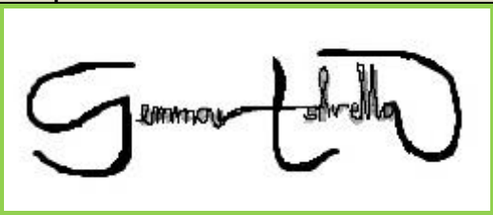
Cytoplasm -- All the contents of a cell, including the plasma membrane,but not including the nucleus.
Cytoskeleton -- Integrated system of molecules within eukaryotic cells which provides them with shape, internal spatial organization, motility, and may assist in communication with other cells and the environment. Red blood cells, for instance, would be spherical instead of flat if it were not for their cytoskeleton.
Dacite -- Igneous volcanic rock, less mafic than andesite, typically fine-grained and light in color; rough volcanic equivalent of granodiorite.
Decomposer -- An organism that breaks down the tissue and/or structures of dead organisms.
Decomposition -- The breakdown of dead organic material by detrivores or saprophytes.
Delta -- n. A low, nearly flat accumulation of sediment deposited at the mouth of a river or stream, commonly triangular or fan-shaped; deltaic– adj.
Dendrites -- n. Small branching patterns on rocks made of iron and manganese oxides that show the passage of fluids through the rock.
Deposition -- Any accumulation of material, by mechanical settling from water or air, chemical precipitation, evaporation from solution, etc.
Derived -- adj. Refers to a character or feature found within a single lineage of a larger group; it is not shared with all organisms in the larger group. Derived characters are used to infer evolutionary relationships, as derived characters evolved after primitive characters. In comparing humans and apes, it can be said that an upright stance in humans is a derived character.



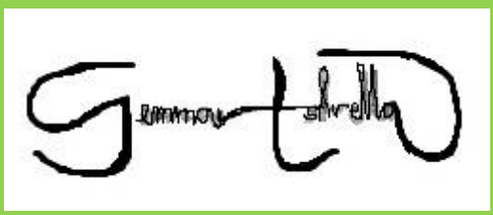
Desiccation -- The process of drying out. In biology, moisture loss in organisms.
Detritus -- Accumulated organic debris from dead organisms, often an important source of nutrients in a food web.
Detrivore -- Any organism which obtains most of its nutrients from the detritus in an ecosystem.
Development -- The process by which a multicellular organism is produced from a single cell.
Diagenesis -- n. Any sort of chemical, physical, or biogenic change that occurs in fossils and sediments after their deposition. Physical erosion of a shell in a river, dissolution of carbonate in acidic conditions, and microbial invasion of a bone are all forms of diagenesis. Adj. Diagenetic
Diatomite -- Diatomite, or diatomaceous earth, is a siliceous sedimaentary rock formed from the accumulations of diatoms or other nanoplankton.
Dikaryotic -- Having two different and distinct nuclei per cell; found in the fungi. A dikaryotic individual is called a dikaryon.
Dinosteranes/dinosteroids -- chemicals found in dinoflagellates, which have been useful in documenting their existence early in the fossil record.
Diorite -- Igneous plutonic rock, less mafic than gabbro, but more mafic than granite and granodiorite; rough plutonic equivalent of andesite.
Dip -- The angle that a bedding plane or fault makes with the horizontal when measured perpendicular to the strike of the bedding plane or fault.
Diploid -- Having two different sets of chromosomes in the same nucleus of each cell. Most metazoans and plants are diploid. Compare with haploid.



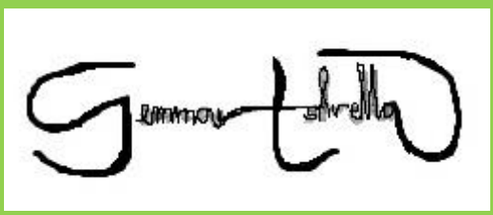
Diploid life cycle -- Occurs when the only multicellular stage in an organism's life cycle is diploid.
Disease -- Organisms suffer from disease when their normal function is impaired by some genetic disorder, or more often from the activity of a parasite or other organism living within them. Many diseases are caused by viruses, bacteria, or fungi.
Dispersal -- The scattering of organisms of a species, often following a major reproductive event. Spores and larvae are commonly dispersed into the environment. Pollen or gametes may also be dispersed, but in this case the intent is to target another individual so that reproduction may occur. Organisms may disperse as spores, seeds, eggs, larvae, or adults.
Diversity -- Term used to describe numbers of taxa, or variation in morphology.
DNA -- "deoxyribonucleic acid". The nucleic acid which carries the genetic code of an organism. It is the primary component of chromosomes. MORE?
Dolomite -- A carbonate sedimentary rock composed of more than 50 percent of the mineral calcium-magnesium carbonate (CaMg(CO3)2).
Dormancy -- A period of suspended growth and metabolic activity. Many plants, seeds, spores, and some invertebrates become dormant during unfavorable conditions.
Double membrane -- In mitochondria and plastids, there is a two-layered membrane which surrounds the organelle. This is believed to be the result of endosymbiosis, with the outer membrane coming from the eukaryotic cell, and the inner membrane belonging to the original prokaryote which was "swallowed".
Drill core -- n. A column of material (e.g., mud, ice, rock) removed from the earth by drilling. Often used as a tool for exploration of natural resources.



Drumlin -- n. Elongated mound of glacial sediment deposited parallel to ice flow.
Ecosystem -- All the organisms in a particular region and the environment in which they live. The elements of an ecosystem interact with each other in some way, and so depend on each other either directly or indirectly.
Egg -- (1) A large gamete without flagellae that is fertilized by a sperm cell. An egg cell is also called an ovum. (2) A complex multicellular structure in which an animal embryo develops.
Elater -- A cell or part of a cell which assists in dispersing spores. The elaters change shape as they lose or acquire water, and they will then push against surrounding spores.
Embryo -- The earliest stage of development in an animal or plant. An embryo begins to form following the fusion of egg and sperm (a zygote).
Embryophyte -- Synonym for the Plantae, as here defined. It includes all green photosynthetic organisms which begin the development of the sporophyte generation within the archegonium.
Enations -- Flaps of tissue such as those found on psilophytes.
Endodermis -- Literally "inner skin", this is a layer of cells which surrounds the central core of vascular tissue, and which helps to regulate the flow of water and dissolved substances.
Endoplasmic reticulum -- (ER) network of membranes in eukaryotic cells which helps in control of protein synthesis and cellular organization.
Endosymbiosis -- When one organism takes up permanent residence within another, such that the two become a single functional organism. Mitochondria and plastids are believed to have resulted from endosymbiosis.



Entomophily -- Seed plants which are pollinated by insects are said to be entomophilous.
Environment -- the place in which an organism lives and the circumstances under which it lives. Environment includes measures like moisture and temperature, as much as it refers to the actual physical place where an organism is found.
Enzyme -- complex protein which helps to speed biochemical reactions. Enzymes are important in the construction and degradation of other molecules.
Epicenter -- Point on the Earth's surface directly above the focus of an earthquake.
Epiphyte -- A plant which grows upon another plant. The epiphyte does not "eat" the plant on which it grows, but merely uses the plant for structural support or as a way to get off the ground and into the canopy environment.
Erosion -- n. The processes by which materials of the Earth's crust are worn away, loosened, or dissolved while being transported from their place of origin.
Erratic -- n. A large, isolated boulder left behind by a glacier.
Escarpment -- n. A steep or vertical cliff, either above or below sea level.
Esker -- n. A ridge of glacial sediment deposited by a stream flowing in and under a melting glacier.
Estuary -- n. An area where fresh water comes into contact with seawater, usually in a partly enclosed coastal body of water; a mix of fresh and salt water where the current of a stream meets the tides; estuarine– adj.
Eukaryote -- n. An organism whose cells have cytoskeletons for support and their DNA contained in a nucleus, separated from the other contents of the cell; e.g., protists, plants, animals, and fungi; eukaryotic- adj.



Euramerica -- n. A supercontinent that existed in the Late Silurian through Devonian formed by the collision of Baltica, Laurentia, and Avalonia; included modern North America, Greenland, Scandinavia, and Europe; also called the "Old Red Continent" for the red color of its oxidized deposits.

Eustele -- When a plant's vascular tissue develops in discrete bundles, it is said to have a eustele. See also protostele and siphonostele.

Evaporite -- n. A deposit of salt minerals (e.g., halite, gypsum, anhydrite) left behind by the evaporation of seawater, usually forms within a restricted basin.

Evolution -- Darwin's definition: descent with modification. The term has been variously used and abused since Darwin to include everything from the origin of man to the origin of life.

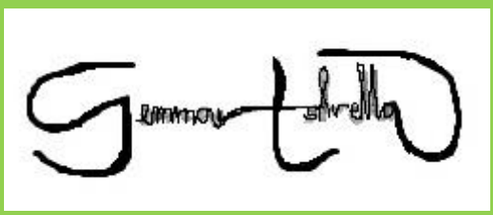
Evolutionary tree -- A diagram which depicts the hypothetical phylogeny of the taxa under consideration. The points at which lineages split represent ancestor taxa to the descendant taxa appearing at the terminal points of the cladogram.

Extinction -- When all the members of a clade or taxon die, the group is said to be extinct.

Extracellular matrix -- (ECM) Region outside of metazoan cells which includes compounds attached to the plasma membrane, as well as dissolved substances attracted to the surface charge of the cells. The ECM functions both to keep animal cells adhered together, and well as buffering them from their environment.

Extrusive -- Igneous. Antonym of intrusive.

Eyespot -- Light-sensitive organelle found in many groups of protists, and in some metazoans.



Fault -- n. (v.) A fracture, or large crack, in the Earth's crust where one side moves up/down/sideways relative to the other; fault block- n. Pieces of crust that have slipped into or alongside a fault; fault zone- n. An area with multiple faults.

Felsic -- Term used to describe the amount of light-colored feldspar and silica minerals in an igneous rock. Complement of mafic.

Female -- In organisms with separate sexes, the one which produces eggs.

Fertilization -- The process by which an egg is made capable of generating offspring. It is often synonymous with syngamy.

Fiber -- Elongated and thickened cell found in xylem tissue. It strengthens and supports the surrounding cells.

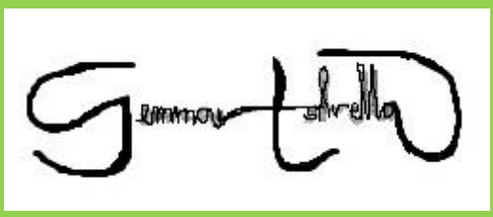
Filament -- Long chain of proteins, such as found in hair, muscle, or in flagella.

Fiord -- A steep-sided, drowned coastal valley carved by glacial action. Also spelled 'fjord.'

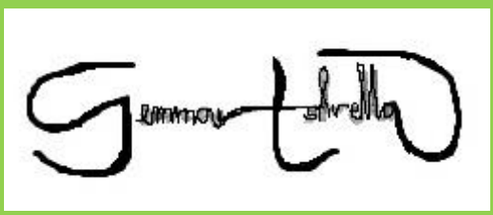
Fission -- Division of single-celled organisms, especially prokaryotes, in which mitosis does not occur. Also used to refer to mitosis in certain unicellular fungi.

Flagellin -- protein which is the primary component of prokaryotic flagella.

Flagellum -- n. Hair-like structure attached to a cell, used for locomotion in many protists and prokaryotes. The prokaryotic flagellum differs from the eukaryotic flagellum in that the prokaryotic flagellum is a solid unit composed primarily of the protein flagellin, while the eukaryotic flagellum is composed of several protein strands bound by a membrane, and does not contain flagellin. The eukaryotic flagellum is sometimes referred to as an undulipodium.



Floodplain -- n. The flat area on either side of an active river channel that can be covered in water when the river is in flood. When the channel is breached, sediment-laden waters spread across the floodplain. When the waters recede, a layer of sediment is left behind. When the floodplain is not covered with water, it commonly supports vegetation and soil formation.
Flower -- Collection of reproductive structures found in flowering plants. More info?
Focus -- The initial point within the Earth that ruptures in an earthquake, directly below the epicenter.
Fold -- Bent rock strata.
Food chain/food web -- All the interactions of predator and prey, included along with the exchange of nutrients into and out of the soil. These interactions connect the various members of an ecosystem, and describe how energy passes from one organism to another.
Fossil -- Any evidence of past life, including remains, traces, imprints as well as life history artifacts. Examples of artifacts include fossilized bird's nests, bee hives, etc.
Fossil record -- All of the fossils that have existed throughout life's history, whether they have been found or not.
Fossiliferous -- adj. Rich in fossils.
Freezing -- To preserve an organism without any significant alteration to its chemical composition by subjecting it to freezing temperatures.
Frugivore -- Animal which primarily eats fruit. Many bats and birds are frugivores.



Fruit -- In flowering plants, the structure which encloses the seeds. True fruits develop from the ovary wall, such as bananas and tomatoes, though not all fruits are edible, such as the dry pods of milkweed or the winged fruits of the maple.

Frustule -- The mineral "skeleton" of a diatom or other unicellular organism.

Fucoxanthin -- yellowish-brown pigment found in some members of the Chromista, including kelps and diatoms.

Gabbro -- Highly mafic igneous plutonic rock, typically dark in color; rough plutonic equivalent of basalt.

Gamete -- Reproductive cells which fuse to form a zygote. Gametes are haploid, and may be differentiated into egg and sperm.

Gametophyte -- The haploid stage in the life cycle of an organism undergoing alternations of generations. The gametophyte is multicellular and mitotically produces gametes. In plants, the gametophyte nourishes the zygote and young sporophyte.

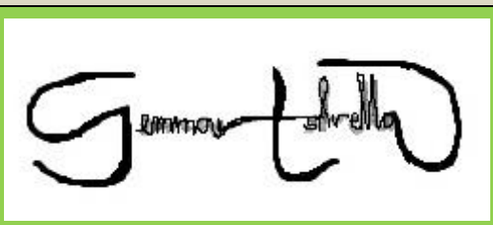
Gastroliths -- n. Fossilized gizzard stones, usually only applicable in the study of fossil reptiles.

Generalist -- Organism which can survive under a wide variety of conditions, and does not specialize to live under any particular set of circumstances.

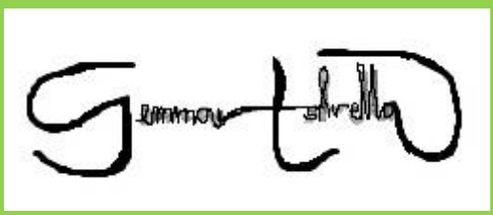
Geologic maps -- Maps that show the types and ages of rock of an area. These maps are used by paleontologists to find areas that are likely to contain fossils they are interested in.

Geologic province -- n. A group of rocks that share a common history or event, for example, rocks that were formed in the same environment at the same time or that were folded and faulted by the same event.

Germination -- The process by which a seedling emerges and develops from a seed, or by which a sporeling emerges and

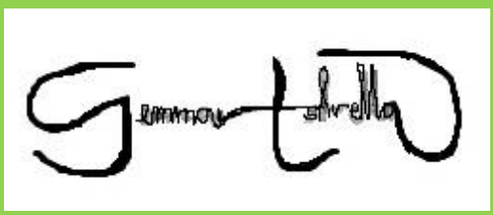


develops from a spore.
Glass -- A non-crystaline rock that results from very rapid cooling of magma.
Glucose -- simple sugar and the primary product of photosynthesis. It is polymerized to make cellulose and chitin.
Glycoprotein -- a membrane-bound protein which has attached branching carbohydrates. These may function in cell-cell recognition, such as in human blood groups and immune system response, as well as in resisting compression of cells.
Golgi apparatus -- Eukaryotic organelle which package cell products, such as enzymes and hormones, and coordinate their transport to the outside of the cell.
Gondwana -- n. A supercontinent that existed from Cambrian to Jurassic time mainly composed of South America, Africa, Madagascar, India, Antarctica, and Australia.
Gradualism -- A model of evolution that assumes slow, steady rates of change. Charles Darwin's original concept of evolution by natural selection assumed gradualism. Contrast with punctuated equilibrium.
Grain -- (1) The texture of wood, produced by the kinds of xylem cells present. (2) The fruit of a member of the grasses.
Granite -- Highly felsic igneous plutonic rock, typically light in color; rough plutonic equivalent of rhyolite. Granite is actually quite rare in the U.S.; often the term is applied to any quartz-bearing plutonic rock.
Granodiorite -- Igneous plutonic rock, less felsic than granite, typically light in color; rough plutonic equivalent of dacite.
Grassland -- Region in which the climate is dry for long periods of the summer, and freezes in the winter. Grasslands are characterized by grasses and other erect herbs, usually

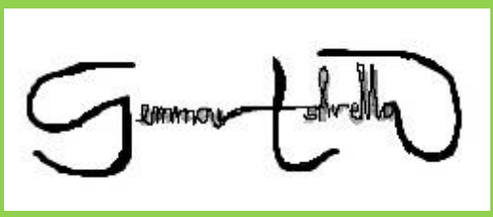


without trees or shrubs. Grasslands occur in the dry temperate interiors of continents, and first appeared in the Miocene.
Graywacke -- Sandstone composed of poorly sorted angular clasts.
Groundwater -- Water found underground as a result of rainfall, ice and snow melt, submerged rivers, lakes, and springs. This water often carries minerals. These minerals can accumulate in the remains of buried organisms and eventually cause fossilization.
Guard cells -- Pair of cells which surround a stomata and regulate its size by altering their shape.
Gymnosperm -- n. A plant that produces seeds, which are not enclosed; includes any seed plant that does not produce flowers.
Gynostemium -- The central reproductive stalk of an orchid, which consists of a stamen and pistil fused together.
Habit -- The general growth pattern of a plant. A plant's habit may be described as creeping, trees, shrubs, vines, etc.
Habitat -- n. An organism's native environment.
Halophile -- Organism which lives in areas of high salt concentration. These organisms must have special adaptations to permit them to survive under these conditions.
Haploid -- Having a single set of chromosomes in the nucleus of each cell. Mosses, and many protists and fungi, are haploid, as are some insects, bryophytes, and the gametes of all organisms. Contrast with diploid.
Haploid life cycle -- Occurs when the only multicellular stage in an organism's life cycle is haploid.

Haploid-diploid life cycle -- Occurs when a multicellular diploid phase, or sporophyte, alternates with a multicellular haploid phase, or gametophyte. Only plants and certain algae possess this kind of life cycle, which is also called "alternation of generations".
Haptonema -- Peg-like structure unique to the Prymnesiophyta; its function is not known.
Hemoglobin -- protein complex found in the blood of most chordates and the roots of certain legumes. It binds oxgen molecules, and in chordates serves as the means by which the oxygen is supplied to the cells of the body.
Herb -- Generally any plant which does not produce wood, and is therefore not as large as a tree or shrub, is considered to be an herb.
Herbivore -- Literally, an organism that eats plants or other autotrophic organisms. The term is used primarily to describe animals.
Heterosporangiate -- Producing two different kinds of sporangia, specifically microsporangia and megasporangia. Compare with heterosporous.
Heterosporous -- Producing two different sizes or kinds of spores. These may come from the same or different sporangia, and may produce similar or different gametophytes. Contrast with homosporous, and compare with heterosporangiate.
Hierarchy -- A series in which each element is categorized into successive ranks or grades with each level subordinate to the one above.
Histones -- proteins attached to the DNA of eukaryotes which allows it to be packaged into chromosomes.
Holdfast -- Anchoring base of an alga.



Homology -- Two structures are considered homologous when



Ion -- an atom or small molecule which carries a positive or negative charge.

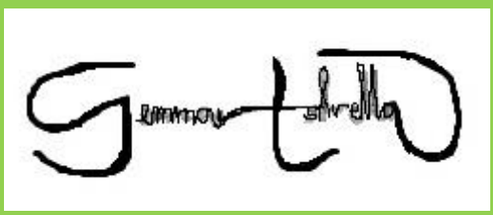
Island arc -- n. A curved chain of islands that rise from the sea floor, usually near a continent. The convex side usually faces the open ocean, while the concave side usually faces the continent, e.g., the Aleutian Islands in Alaska; volcanic arc-syn.

Isotope -- One of two or more variations of the same chemical element, differing in the number of neutrons not the number of protons.

Isotopic analysis -- n. The study of the geochemistry of stable isotopes in naturally occurring sediments and biological structures. Stable isotopes are atomic variations of elements that are stable over long periods of time, meaning they do not radioactively decay. Several elements, like oxygen and carbon, have several stable forms. Oxygen, for example, occurs in nature as 16O and 18O — these two forms are isotopes. They have different numbers of neutrons (16O has two more neutrons than 18O), and and is therefore heavier. Because the two isotopes have different masses, chemical and physical reactions like bonding, evaporation, and precipitation occur at different frequencies. The ratio of stable isotopes is preserved in chemical compounds like water, ice, and calcium carbonate and provides information on the environmental conditions at the time the compound formed. For example, the ratio of 18O/16O in an ice sample is linked to the water temperature of ancient oceans, which in turn reflects ancient climates.

Kame -- n. A short, steep-sided knoll of glacial sediment.

Karst -- n. A type of topography formed by dissolution of rocks like limestone and gypsum that is characterized by sinkholes, caves, and subterranean passages.



Karyogamy -- A process of fusion of the nuclei of two cells; the second step in syngamy.

Kelp forest -- Marine ecosystem dominated by large kelps. These forests are restricted to cold and temperate waters, and are most common along the western coasts of continents. Kelp forests first appeared in the Miocene.

Kettle lakes -- n. Lakes formed as water fills a hole formerly occupied by a block of stranded ice.

Lamina -- Any broad and flattened region of a plant or alga, which allows for increased photosynthetic surface area.

Laminarin -- a beta-glucan polysaccharide produced by many chromists through photosynthesis.

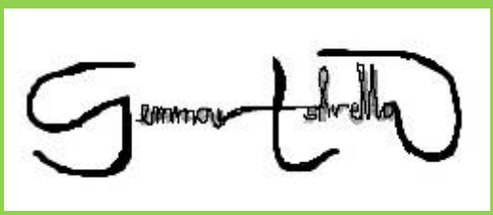
Larva -- Among invertebrates, an immature stage in the life cycle which usually is much smaller than, and morphologically different from, the adult. In insects with metamorphosis, the larva must become a pupa before reaching adulthood.

Laurasia -- n. A supercontinent that existed from the Jurassic to Early Tertiary after splitting from Pangea; composed of Laurentia, Baltica, Avalonia, (modern North America, Scandinavia, Greenland, Western and Central Europe); eventually fragmented into Eurasia and North America in the Tertiary with the opening of the North Atlantic Ocean.

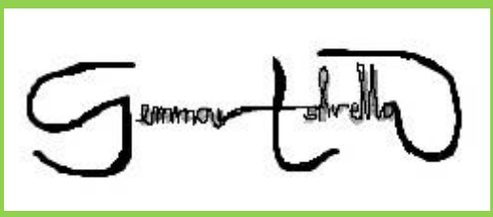
Laurentia -- n. A separate continental plate that existed from the Late Precambrian to Silurian, consisting of the major part of North America, northwest Ireland, Scotland, Greenland, and pieces of Norway and Russia.

Lava -- Any molten material that is extrusive or volcanic, or the rock that forms from a molten extrusive.

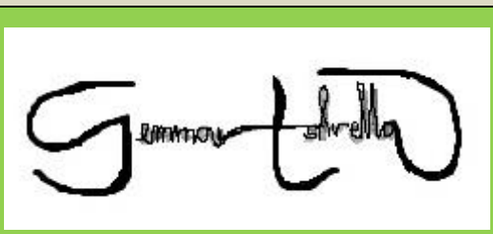
Leaf -- An organ found in most vascular plants; it consists of a flat lamina (blade) and a petiole (stalk). Many flowering plants have additionally a pair of small stipules near the base



of the petiole.
Leaf trace -- The strand of vascular tissue which connects the leaf veins to the central vascular system of the stem.
Leaflet -- In a compound leaf, the individual blades are called leaflets.
Limestone -- A carbonate sedimentary rock composed of more than 50 percent of the mineral calcium carbonate (caco3).
Limnology -- The study of river system ecology and life.
Limy -- adj. Describes sediments, soils, or rocks that contain a significant amount of lime (calcium oxide, cao).
Lineage -- Any continuous line of descent; any series of organisms connected by reproduction by parent of offspring.
Lipids -- a class of biochemical compounds which includes fats, oils, and waxes.
Litter -- Leaf litter, or forest litter, is the detritus of fallen leaves and bark which accumulate in forests.
Loess -- n. A widespread, loose deposit consisting mainly of silt; most loess deposits formed during the Pleistocene as an accumulation of wind-blown dust carried from deserts, alluvial plains, or glacial deposits.
Lorica -- A vase-shaped or cup-shaped outer covering. Found in many protists, including some flagellates, ciliates, chrysophytes, and choanoflagellates, as well as in some animal cells.
Lowland -- n. (adj.) Large area of relatively low relief, usually applied to coastal regions that do not rise high above sea level. Upland, highland – ant.



Luciferase -- enzyme which activates luciferin to produce bioluminescence.
Luciferin -- compound whose activated form emits light.
Lysosome -- Eukaryotic organelle which carries digestive enzymes. The lyzosome fuses with a vacuolar membrane containing ingested particles, which are then acted upon by the enzymes.
Macroscopic -- Objects or organisms that are large enough to be seen with the naked eye.
Mafic -- Term used to describe the amount of dark-colored iron and magnesium minerals in an igneous rock. Complement of felsic.
Magma -- n. Molten rock generated within the Earth; forms intrusive (solidifies below the surface) and extrusive (solidifies above the surface) igneous rocks.
Magnoliid -- Any member of the basal assemblage of flowering plants.
Male -- In organisms with separate sexes, the one which produces sperm.
Mannoxylic -- Wood in which there is a great deal of parenchyma tissue among the xylem is called mannoxylic. Cycads and pteridosperms have mannoxylic wood. Contrast with pycnoxylic.
Mantle -- That portion of the interior of the Earth that lies between the crust and the core.
Marine -- Refers to the ocean.
Marine terrace -- n. A platform of marine deposits (typically sand, silt, gravel) sloping gently seaward. Such a platform



may be exposed along the coast, forming cliffs, due to uplift and/or the lowering of sea level, e.g., marine terraces of coastal Southern California.

Marl -- n. A loose, crumbly deposit consisting of clay and calcium carbonate and formed in marine or freshwater conditions.

Mastigoneme -- Small hair-like filaments found on the "hairy" flagellum of the Chromista.

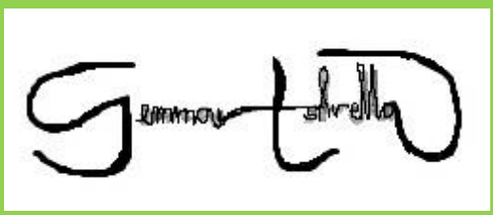
Megaspore -- In plants which are heterosporous, the larger kind of spore is called a megaspore; it usually germinates into a female (egg-producing) gametophyte. Contrast with microspore.

Meguma -- n. - A terrane or microcontinent that formed in the Cambrian as part of the continental shelf of Gondwana, drifted apart in the Ordovician, and collided with the Laurentia in the Devonian; it forms the southern part of mainland Nova Scotia (Meguma Zone), separated from the Avalon Zone by a large fault that runs from Cobequid Bay to Chedabucto Bay.

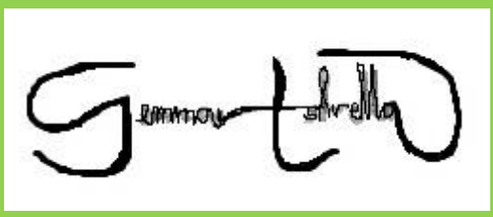
Meiosis -- A two-stage type of cell division in sexually reproducing organisms. In meiosis, a diploid cell divides to produce four haploid cells, each with half the original chromosome content. For this reason, meiosis is often called a "reduction division". In organisms with a diploid life cycles, the products of meiosis are usually called gametes. In organisms with an alternation of generations, the products of meiosis are caled spores.

Melange -- A body of rocks consisting of large blocks (mappable size) of different rocks jumbled together with little continuity of contacts.

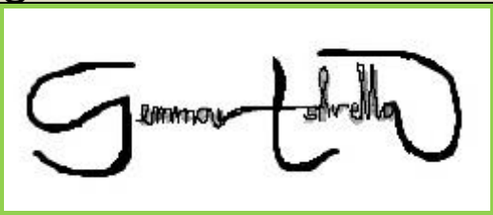
Membrane -- In biology, a boundary layer inside or around a living cell or tissue.



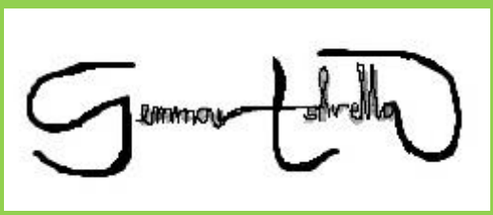
Meristem -- Group of undifferentiated cells from which new tissues are produced. Most plants have apical meristems which give rise to the primary tissues of plants, and some have secondary meristems which add wood or bark.
Merophytes -- Group of cells which have all been produced from the same initial cell. Leaves and stems in particular are often built from specific patterns of merophytes.
Mesokaryotic -- Nuclear condition unique to the dinoflagellates in which the chromosomes remain permanently condensed.
Metamorphic rock -- Any rock derived from other rocks by chemical, mineralogical and structural changes resulting from pressure, temperature or shearing stress.
Metamorphism -- n. The process of altering the chemical or mineralogical composition of a rock through different amounts of heat and pressure below the surface of the Earth; metamorphose- v; metamorphic - adj.
Metamorphosis -- n. A process of developmental change whereby a larva reaches adulthood only after a drastic change in morphology; occurs in most amphibians and insects, for some insects, this change may include another stage (pupa) before the adult stage; metamorphose- v.
Microfossil -- n. A very small fossil, best studied with the aid of a microscope, e.g. Foraminifera, radiolarians, and small vertebrate fossils such as teeth. Macrofossil– ant.
Microphyll -- A kind of leaf, specifically one which has a single, unbranched vein in it. Microphylls are only found in the lycophytes.
Microscopic -- Objects or organisms that are too small to be seen with the naked eye.
Microspore -- In plants which are heterosporous, the smaller kind of spore is called a microspore; it usually germinates into a male (sperm-producing) gametophyte. Contrast with megaspore.



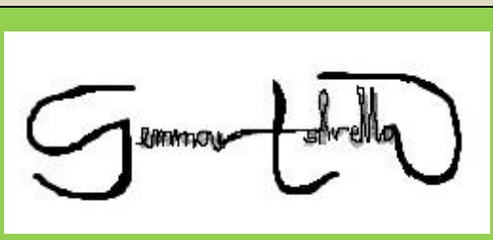
Microtubules -- Type of filament in eukaryotic cells composed of units of the protein tubulin. Among other functions, it is the primary structural component of the eukaryotic flagellum.
Microvilli -- Thin fingerlike protrusions from the surface of a cell, often used to increase absorptive capacity or to trap food particles. The "collar" of choanoflagellates is actually composed of closely spaced microvilli.
Mid-oceanic ridges -- Elongated rises on the ocean floor where basalt periodically erupts, forming new oceanic crust; similar to continental rift zones.
Mineralization -- The process of replacing any organism's original material with a mineral.
Mitochondrion -- Complex organelle found in most eukaryotes; believed to be descended from free-living bacteria that established a symbiotic relationship with a primitive eukaryote. Mitochondria are the site of most of the energy production in most eukaryotes; they require oxygen to function. See: double membrane.
Mitosis -- The process of nuclear division in eukaryotes. It is one step in cytokinesis, or cellular division. MORE ?.
Molds -- Fossils formed when the sediment surrounding a buried organism hardens. When the organism decays, its impression is left in the rock and can be seen if the rock is broken open.
Monophyletic -- Term applied to a group of organisms which includes the most recent common ancestor of all of its members and all of the descendants of that most recent common ancestor. A monophyletic group is called a clade. More?
Monsoon -- n. - A seasonal weather pattern where winds, and often rain, come consistently from one direction for many months. It is caused by the temperature differences between land and ocean, and in general, a larger landmass makes a greater difference, which makes a more extreme monsoon.



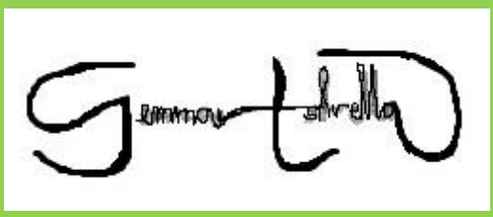
Monsoonal -- adj. Describes a climate pattern with a wind system that changes direction with the seasons; this pattern is dominant over the Arabian Sea and Southeast Asia.
Moraine -- n. A mound or ridge of sediment deposited by a glacier; lateral moraine- n. Deposited to the side of a glacier; terminal moraine- n. Deposited to the front of a glacier; ground moraine- n. Deposited on the land surface.
Morphology -- n. The form and structure of anything, usually applied to the shapes, parts, and arrangement of features in living and fossil organisms.
Morphotype -- n. An individual or set of organisms within a population distinguished by having a distinct physical structure.
Motile -- Able to move oneself about, capable of self-locomotion.
MTOC -- (microtubule organizing center) mtocs are bundles of protein tubes which may be found at the base of a eukaryotic flagellum. In animals, they also function in creating the arrays of microtubules that pull the chromosomes apart during mitosis.
Multicellular -- Any organism which is composed of many cells is termed multicellular.
Mycorrhizae -- Symbiotic association between a fungus and the roots or rhizoids of a plant. More info?
Nanometer -- n. A unit of measure; one millionth (10-9) of a meter.
Neurotoxin -- poison which interferes with nerve function, usually by affecting the flow of ions through the cell membrane.
Niche -- n. The portion of the environment that a species occupies, defined in terms of the conditions under which an organism can survive, and the presence of other competing



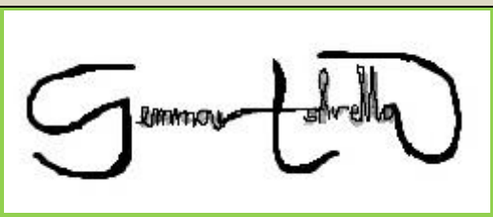
organisms.
Nitrogen fixation -- The conversion of gaseous nitrogen into a form usable by plants. Usually by bacteria.
Nocturnal -- Active only at night.
Node -- The region of a stem between two internodes, where there is branching of the vascular tissue into leaves or other appendages.
Nuclear membrane -- The double membrane which surrounds the eukaryotic nucleus. It has many pores in its surface which regulate the flow of large compounds into and out of the nucleus.
Nucleic acid -- class of biochemical compounds which includes DNA and RNA. They are among the largest molecules known. MORE?
Nucleoid -- Region in prokaryotes where the DNA is concentrated. Unlike a nucleus, it is not bound by a membrane.
Nucleotide -- unit from which nucleic acids are constructed by polymerization. It contains a sugar, a phosphate group, and an organic base. ATP is a nucleotide.
Nucleus -- Membrane-bound organelle which contains the DNA in the form of chromosomes. It is the site of DNA replication, and the site of RNA synthesis.
Nutrient -- Any element or simple compound necessary for the health and survival of an organism. This includes air and water, as well as food.
Nutrient cycling -- All the processes by which nutrients are transferred from one organism to another. For instance, the carbon cycle includes uptake of carbon dioxide by plants, ingestion by animals, and respiration and decay of the animal.



Nymph -- In aquatic insects, the larval stage.
Oceanic crust -- n. The Earth's crust which is formed at mid-oceanic ridges, typically 5 to 10 kilometers thick with a density of 3.0 grams per centimeter cubed.
Oceanic trench -- Deep steep-sided depression in the ocean floor caused by the subduction of oceanic crust beneath either other oceanic crust or continental crust.
Omnivore -- Literally, an organism that will eat anything. Refers to animals that do not restrict their diet to just plants or other animals.
Ontogeny -- n. The growth of an organism through all its developmental stages (embryonic stage through death).
Organelle -- n. A membrane-bound structure in a eukaryotic cell that partitions the cell into regions which carry out different cellular functions, e.g., mitochondria, endoplasmic reticulum, lysosomes.
Organic -- adj. Pertaining to compounds containing carbon. Also refers to living things or the materials made by living things. Ant. - inorganic.
Orogeny -- n. The tectonic processes of folding, faulting, and uplifting of the earth’s crust that result in the formation of mountains.
Ossification -- n. The process of bone formation. Special cells called osteoblasts secrete minerals that combine with a network of collagen fibers, forming the hard bone matrix.
Outcrop -- n. Any place where bedrock is visible on the surface of the Earth. V. The exposing of bedrock at the Earth's surface.
Outgroup -- In a cladistic analysis, any taxon used to help resolve the polarity of characters, and which is hypothesized to be less closely related to each of the taxa under consideration than any are to each other.



Ovary -- In flowering plants, the part of the flower which encloses the ovules. When the ovary matures, it becomes the fruit.
Ovule -- In seed plants, the structure which gives rise to the seed.
Paleobiology -- n. A field of science that uses biological studies of living organisms to answer questions about the evolution and physiology of extinct organisms.
Paleoherb -- Any member of a group of basal flowering herbs which may be the closest relatives of the monocots. They include the water lilies, Piperales, and Aristolochiales.
Paleosol -- Soil horizon from the geologic past.
Paleo-Tethys Ocean -- n. A large ocean that originated between eastern Gondwana, Siberia, Kazakhstan, and Baltica in the Ordovician and finally closed in the Jurassic; replaced by the Tethys Ocean as eastern Pangea was assembled.
Pangea -- n. A supercontinent that existed from the the end of the Permian to the Jurassic, assembled from large continents like Euramerica, Gondwana, and Siberia, as well as smaller landmasses like the Cathaysian and Cimmerian terranes; Greek for "all lands."
Pannotia -- n. A supercontinent that existed in the Late Precambrian and gave rise to the continents of Gondwana, Laurentia, Siberia, and Baltica in the Cambrian.
Panthalassic Ocean -- n. A vast ocean that existed from the Late Precambrian to the Jurassic, circling the globe and connecting to smaller oceans that developed throughout the Phanerozoic; also known as the Panthalassa.
Paraphyletic -- Term applied to a group of organisms which includes the most recent common ancestor of all of its members, but not all of the descendants of that most recent common ancestor. More?



Parasite -- n. An organism that lives on or within a host (another organism); it obtains nutrients from the host without benefiting or killing (although it may damage) the host; parasitic- adj.; parasitism- n. A type of symbiotic relationship in which one organism benefits and the other does not.

Parataxonomy -- n. The grouping of organisms based on common morphology; does not imply evolutionary relationships. For example, fossil eggs can be assigned to parataxons without any knowledge of which specific organism produced them.

Parenchyma -- A generalized cell or tissue in a plant. These cells may manufacture or store food, and can often divide or differentiate into other kinds of cells.

Parsimony -- Refers to a rule used to choose among possible cladograms, which states that the cladogram implying the least number of changes in character states is the best.

Pathogenic -- Organism which causes a disease within another organism.

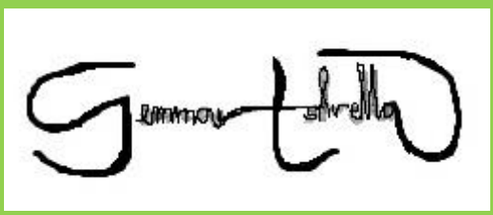
Peat -- n. A deposit of partly decayed plant remains in a very wet environment; marsh or swamp deposit of plant remains containing more than 50 percent carbon.

Pelagic -- Pelagic organisms swim through the ocean, and may rise to the surface, or sink to the bottom. They are not confined to live on the bottom as benthic organisms do.

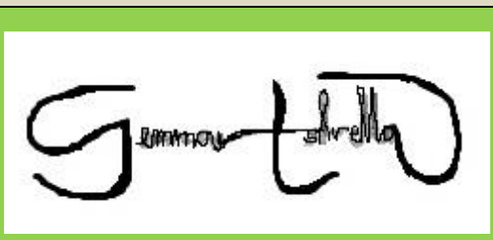
Peptidoglycan -- carbohydrate polymer cross-linked by proteins. It is found in the cell wall of Gram positive bacteria, where it stains with the dye crystal-violet.

Perennial -- A plant which continues to grow after it has reproduced, usually meaning that it lives for several years.

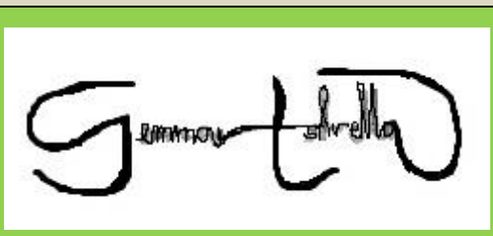
Perianth -- The sepals and petals of a flower are together called the perianth; literally "around the anthers". More info?



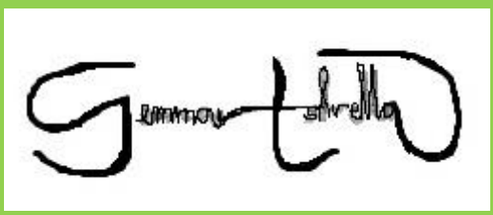
Peridinin -- carotenoid pigment found in dinoflagellates.
Periphyton -- Dense strands of algal growth that cover the water surface between the emergent aquatic plants. Spirogyra is commonly responsible for this growth.
Peristome -- A set of cells or cell parts which surround the opening of a moss sporangium. In many mosses, they are sensitive to humidity, and will alter their shape to aid in spore dispersal.
Permineralization -- Fossilization process that occurs when minerals, carried by ground water, enter and harden in the pores of an organism's structures.
Petal -- One of the outer appendages of a flower, located between the outer sepals and the stamens. Petals often display bright colors that serve to attract pollinators. More info?
Phanerozoic -- n. The geologic eon that includes the interval of time from approximately 543 million years ago to the present, comprising the Paleozoic, Mesozoic, and Cenozoic eras.
Phloem -- Nutrient-conducting tissue of vascular plants.
Phosphate -- an ion consisting of a phosphorus atom and four oxygen atoms. Among other things, it is used in the constuction of nucleic acids.
Photic zone -- Region of the ocean through which light penetrates; and the place where photosynthetic marine organisms live.
Photosynthesis -- biochemical process in which light energy is absorbed by chlorophyll, and is used to fuel the building of sugar molecules.
Phragmoplast -- The cell plate formed during cell division.



Phycocyanin -- blue, water-soluble pigment found in the cyanobacteria and the red algae.
Phycoerythrin -- red, water-soluble pigment found in the cyanobacteria and red algae.
Phylogenetics -- Field of biology that deals with the relationships between organisms. It includes the discovery of these relationships, and the study of the causes behind this pattern.More?
Phylogeny -- The evolutionary relationships among organisms; the patterns of lineage branching produced by the true evolutionary history of the organisms being considered.
Phytomelanin -- a papery "sooty" black layer over the seed of plants in the Asparagales, which includes agaves, aloes, onions and hyacinths. It is an important character for defining the group.
Phytoplankton -- Tiny, free-floating, photosynthetic organisms in aquatic systems. They include diatoms, desmids, and dinoflagellates.
Pigment -- any colorful compound, used by living things to absorb or block sunlight, and in sexual displays. More info?
Pillow lava -- Lava extruded beneath water characterised by pillow-type shapes.
Pinnately compound -- Leaves which are divided up like a feather are said to be pinnately compound.
Pistil -- The central set of organs in a flower; it is composed of one or more carpels. More info?
Pith -- To severely damage the brain of a frog, also any central region of parenchyma tissue within a plant stem.
Pits -- Thin regions of the cell wall in xylem conducting cells. Their structure is an important characteristic for recognizing



different kinds of wood.
Plankton -- n. Very small, free-floating organisms of the ocean or other aquatic systems, including phytoplankton, which produce their own nutrients through photosynthesis, or zooplankton, which get their nutrients from organisms.
Plasma membrane -- Outer membrane of a cell, sometimes called the cell membrane. The term plasma membrane is used more frequently when discussing prokaryotes.
Plasmid -- Circular loop of DNA in prokaryotes. Eukaryotic DNA is organized into chromosomes.
Plasmodesmata -- Cytoplasmic connections between neighboring cells in plant tissues.
Plasmogamy -- A process of fusion of the cytoplasm of two cells; the first step in syngamy.
Plastid -- Any of several pigmented cytoplasmic organelles found in plant cells and other organisms, having various physiological functions, such as the synthesis and storage of food.
Plate -- n. Rigid parts of the Earth's crust and part of the Earth's upper mantle that move and adjoin each other along zones of seismic activity. The theory that the crust and part of the mantle are divided into plates that interact with each other causing seismic and tectonic activity is called plate tectonics.
Platyspermic -- Having seeds which are flattened and disc-like. Contrast with radiospermic.
Plesiomorphy -- A primitive character state for the taxa under consideration.
Plicate -- Folded like a paper fan, as in the leaves of palms, cyclanthoids, and some orchids.



Pluton -- n. any body of igneous rock that solidified below the earth's surface.

Plutonic -- Applies to igneous rocks formed beneath the surface of the Earth; typically with large crystals due to the slowness of cooling. Synonym of intrusive. Antonym of volcanic.

Polarity of characters -- The states of characters used in a cladistic analysis, either original or derived. Original characters are those acquired by an ancestor deeper in the phylogeny than the most recent common ancestor of the taxa under consideration. Derived characters are those acquired by the most recent common ancestor of the taxa under consideration.

Pollen -- The microspore of seed plants.

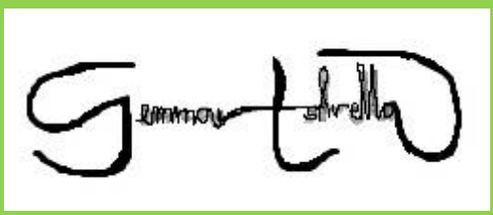
Pollen tube -- In seed plants, the extension of the male gametophyte as it emerges from the pollen grain in search of the female gametophyte.

Pollination -- Process of transferring the pollen from its place of production to the place where the egg cell is produced. This may be accomplished by the use of wind, water, insects, birds, bats, or other means. Pollination is usually followed by fertilization, in which sperm are released from the pollen grain to unite with the egg cell.

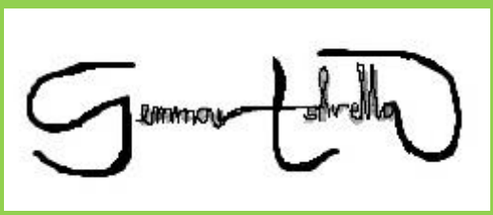
Pollinator -- Animal which carries pollen from one seed plant to another, unwittingly aiding the plant in its reproduction. Common pollinators include insects, especially bees, butterflies, and moths, birds, and bats.

Pollinia -- A mass of fused pollen produced by many orchids.

Polymer -- a large molecule constructed from many smaller identical units. These include proteins, nucleic acids, and starches.



Polyphyletic -- Term applied to a group of organisms which does not include the most recent common ancestor of those organisms; the ancestor does not possess the character shared by members of the group. More?
Predator -- Organism which hunts and eats other organisms. This includes both carnivores, which eat animals, and herbivores, which eat plants.
Prey -- Organism hunted and eaten by a predator.
Primitive -- adj. Refers to a character or feature in a group of organisms that is inherited from a common ancestor. Teeth are a primitive characteristic of birds since birds inherited them from their dinosaur ancestors.
Producer -- Any organism which brings energy into an ecosystem from inorganic sources. Most plants and many protists are producers.
Prokaryotic -- Literally "before the nucleus", the term applies to all bacteria and archaea. Prokaryotic cells have no internal membranes or cytoskeleton. Their DNA is circular, not linear.
Protein -- class of biochemical compounds constructed from amino acids. Proteins may be structural, such as those that make up hair and cartilage, or they may be reactive, such as the enzymes.
Proteinaceous -- describes any structure which is composed of protein.
Proteoglycan --
Protoplasm -- All the contents of a cell, including the nucleus. (see: cytoplasm)
Protostele -- When a plant's vascular tissue develops in a solid central bundle, it is said to have a protostele. See also siphonostele and eustele.



Pseudoelaters -- Moisture-sensitive cells produced in the sporangium of hornworts.

Pseudoextinction -- The apparent disappearance of a taxon. In cases of pseudoextinction, this disappearance is not due to the death of all members, but the evolution of novel features in one or more lineages, so that the new clades are not recognized as belonging to the paraphyletic ancestral group, whose members have ceased to exist. The Dinosauria, if defined so as to exclude the birds, is an example of a group that has undergone pseudoextinction.

Pseudopodia -- Fingerlike extensions from an amoeboid cell; literally "false feet".

Pteridophyte -- Plant in which the sporophyte generation is the larger phase and in which the gametophyte lives an existence independent of its parent sporophyte. Pteridophytes are almost all vascular plants, and include the lycophytes, trimerophytes, sphenophytes, and ferns.

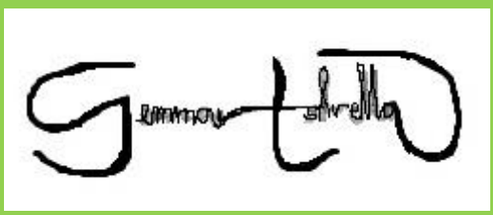
Pteridosperm -- An extinct group of seed plants which bore fern-like leaves.

Punctuated equilibrium -- A model of evolution in which change occurs in relatively rapid bursts, followed by longer periods of stasis.

Pupa -- In metamorphozing insects, a stage between the larva and adult during which the organism undergoes major developmental changes.

Pycnoxylic -- Wood in which there is little or no parenchyma tissue among the xylem is called pycnoxylic. Conifers and flowering plants have pycnoxylic wood. Contrast with mannoxylic.

Radiation -- Event of rapid cladogenesis, believed to occur under conditions where a new feature permits a lineage to move into a new niche or new habitat, and is then called an adaptive radiation.



Radicle -- The end of a plant embryo which gives rise to the first root.

Radio-carbon dating -- Method for determining the age of an organic substance by measuring the amount of the carbon isotope, carbon-14, remaining in the substance; useful for determining ages in the range of 500 to 70,000 years.

Radiospermic -- Having seeds which are round or ovoid. Contrast with platyspermic.

Rain shadow -- n. The dry region on the leeward side of a mountain range, where rainfall is noticeably less than on the windward side. For example, the White Mountains in east central California are in the rain shadow of the Sierra Nevada.

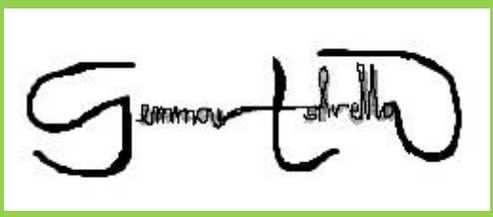
Rank -- In traditional taxonomy, taxa are ranked according to their level of inclusiveness. Thus a genus contains one or more species, a family includes one or more genera, and so on.

Rbcl -- a gene which is located in the chloroplast of photosynthetic organisms. It codes for the large subunit of the protein rubisco, and its sequence has been useful in plant phylogenies.

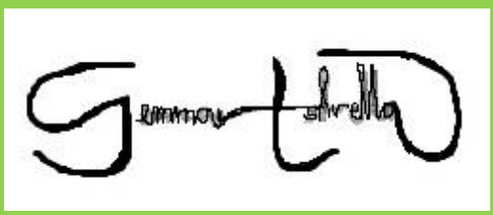
Rebound -- v. To spring back after a weight has been removed.

Red bed -- n. Sedimentary layers composed primarily of sandstone, siltstone, and shale, that are predominantly red in color due to the presence of iron oxides; often used in reference to the Permian or Triassic sediments of the western U.S.

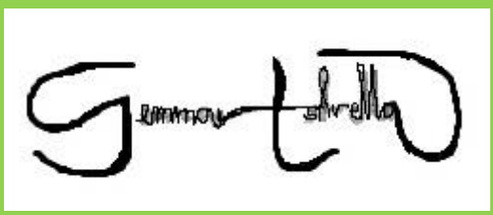
Reef -- n. A large ridge or mound-like structure within a body of water that is built by calcareous organisms such as corals, red algae, and bivalves; barrier reef- n. A reef growing offshore from a land mass and separated by a lagoon or estuary, e.g, the Great Barrier Reef of Australia; patch reef- n. A discontinuous reef growing in small areas, separated by



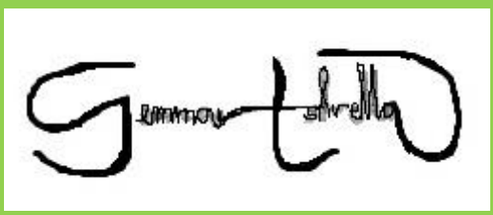
bare areas of sand or debris, often part of a larger reef complex.
Regression -- (n) A drop in sea level that causes an area of the land to be uncovered by seawater.
Relatedness -- Two clades are more closely related when they share a more recent common ancestor between them than they do with any other clade.
Repeat sequences -- The length of a nucleotide sequence that is repeated in a tandem cluster.
Replacement -- Fossilization process in which the original material in an organism is broken down and replaced by different minerals.
Reproduction -- The manufacture of offspring as part of an organism's life cycle. This is not the same as dispersal. Reproduction may be sexual, involving the fusion of gametes, or asexual.
Reticulate -- Interconnecting, like a network.
Reticulation -- Joining of separate lineages on a phylogenetic tree, generally through hybridization or through lateral gene transfer. Fairly common in certain land plant clades; reticulation is thought to be rare among metazoans.
Reticulopodia -- Long thread-like pseudopodia that branch apart and rejoin, forming a fine network. They are characteristic of forams.
Rhizoid -- n. A cellular outgrowth of a plant that usually aids in anchoring to the surface and increasing surface area to acquire water or nutrients; found in mosses, liverworts, and hornworts.
Rhizome -- n. A horizontal underground stem, such as found in many ferns, where only the leaves may stick up into the air; sphenophytes (horsetails and their relatives) spread via



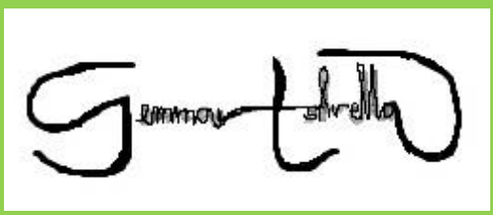
rhizomes, but also produce erect stems.
Rhyolite -- Highly felsic igneous volcanic rock, typically light in color; rough volcanic equivalent of granite.
Ribosome -- (ribosomal RNA)
Rift -- n. A long, narrow crack in the entire thickness of the Earth's crust, which is bounded by normal faults on either side and forms as the crust is pulled apart; v. To split the Earth's crust; rift zone- n. The area on continents where a trough bounded by normal faults is forming; the site of crustal extension, similar to that which occurs at mid-oceanic ridges; rift basin or rift valley- n. The long, and fairly wide trough that has formed as a section of the Earth's crust has dropped down along faults, e.g., African Rift Valley in East Africa.
Riparian -- Having to do with the edges of streams or rivers.
RNA -- "ribonucleic acid". The nucleic acid which carries the DNA message into parts of the cell where it is interpreted and used. The 18S ribosomal RNA sequence has been used in many groups of organisms to reconstruct phylogeny.
Roche moutonee -- n. A rock formation created by a glacier. The front and sides of the rock are rounded where ice moved over it, and the back is angular, where freezing and thawing broke off pieces; the name comes from the French for "fleecy rock," also called a sheepback.
Rock cycle -- The process through which one type of rock (igneous, sedimentary, or metamorphic) is converted into another.
Rodinia -- n. A supercontinent that existed during the Late Precambrian before the supercontinent Pannotia; the oldest supercontinent for which we have a good record; Russian for



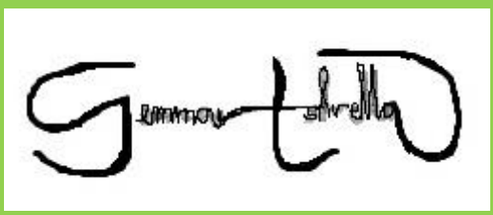
"homeland."
Root -- Usually the below ground portion of a plant. Contrast with shoot.
Rosette -- A series of whorls of leaves or leaf-like structure produced at the base of the stem, just above the ground.
Rubisco -- protein which fixes carbon in photosynthetic organisms. It binds molecules of carbon dioxide to a five-carbon molecule. Rubisco is the most common protein on earth.
Salinity -- A measure of the salt concentration of water. Higher salinity means more dissolved salts.
Salt lick -- n. A natural or artificial deposit of exposed salt that animals lick for nutrients.
Sandstone -- Sedimentary rock composed of sand-sized clasts.
Saprophyte -- Organism which feeds on dead and decaying organisms, allowing the nutrients to be recycled into the ecosystem. Fungi and bacteria are two groups with many important saprophytes.
Saxitoxin -- neurotoxin found in a variety of dinoflagellates. If ingested, it may cause respiratory failure and cardiac arrest.
Scanning electron microscope (SEM) -- n. A special kind of microscope that scans samples with a high-energy beam of electrons to produce a high-resolution, detailed, three-dimensional image. An SEM can magnify a sample up to 250 times that of the best light microscopes.
Scavenger -- An organism that feeds upon dead and dying organisms.



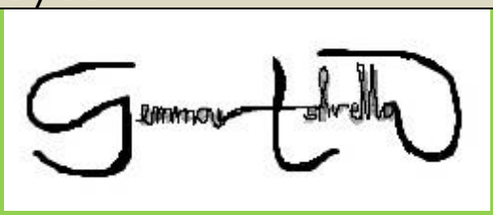
Sea-floor spreading -- n. The process of adding to the Earth's crust at mid-ocean ridges as magma wells up and forces previously formed crust apart.
Seaweed -- Any large photosynthetic protist, including rhodophytes and kelps. Seaweeds are not true plants, but like plants they can make their own food. More info?
Secondary growth -- Growth in a plant which does not occur at the tips of the stems or roots. Secondary growth produces wood and bark in seed plants.
Sedentary -- Living in a fixed location, as with most plants, tunicates, sponges, etc. Contrast with motile.
Sediment -- Any solid material that has settled out of a state of suspension in liquid.
Sedimentary rock -- Any rock resulting from the consolidation of sediment.
Seed -- A structure produced by seed plants which encapsulates the embryo. The seed often provides nourishment during germination, but may lie dormant for many years first.
Selection -- Process which favors one feature of organisms in a population over another feature found in the population. This occurs through differential reproduction—those with the favored feature produce more offspring than those with the other feature, such that they become a greater percentage of the population in the next generation.
Sepal -- The outermost structures of a flower. More info?
Sexual reproduction -- A type of reproduction in which two parents give rise to offspring that have unique combinations of genes inherited through the gametes of the two parents. Sexual reproduction involves meiosis and syngamy.



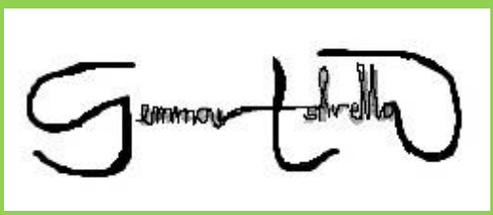
Shoot -- Usually, the above ground portion of a plant, bearing the leaves. Contrast with root.
Siberia -- n. A separate continental plate that existed from the Latest Precambrian to the Carboniferous composed of a large part of central Russia, namely Siberia.
Siderite -- Also called ironstone, which is a concretion of iron carbonate. Common in the Mazon Creek fossil beds.
Silica -- amorphous silicon dioxide (glass). It is a structural component in many organisms, such as diatoms and horsetails.
Silicification -- Process whereby silica replaces the original material of a substance. For example, silicified wood.
Sill -- n. A sheet-like igneous intrusion that parallels the plane of the surrounding rock.
Sinkhole -- n. A natural depression in the surface of the land caused by the collapse of the roof of a cavern or subterranean passage, generally occurring in limestone regions.
Siphonostele -- When a plant's vascular tissue develops as a central cylinder, it is said to have a siphonostele. See also protostele and eustele.
Sister group -- The two clades resulting from the splitting of a single lineage.
Soil -- Unconsolidated materials above bedrock.
Specialist -- Organism which has adopted a lifestyle specific to a particular set of conditions. Contrast with generalist.
Spermatophyte -- A seed plant.



Spongin -- proteinacous compound of which the spicules in Demospongiae are composed.
Sporangiophore -- A stalk to which sporangia are attached.
Sporangium -- A chamber inside of which spores are produced through meiosis.
Spore -- n. A single cell that is dispersed as a reproductive unit, or that encapsulates a cell during unfavorable environmental conditions; in organisms with an alternation of generations; the products of meiosis are spores.
Sporophyll -- Any leaf which bears sporangia is called a sporophyll.
Sporophyte -- The diploid stage in the life cycle of an organism undergoing an alternation of generations. The sporophyte is multicellular and develops from a zygote. The mature sporophyte meiotically produces haploid spores that later generate the gametophyte generation.
Stamen -- Part of a flower, the tip of which produces pollen and is called the anther. More info?
Starch -- a complex polymer of glucose, used by plants and green algae to store surplus sugar for later use.
Stasis -- A period of little or no discernible change in a lineage.
Stem group -- All the taxa in a clade preceding a major cladogenesis event. They are often difficult to recognize because they may not possess synapomorpies found in the crown group.
Stigma -- The sticky tip of a pistil. Or, the dense region of pigments found in many photosynthetic protists which is sensitive to light, and thus functions somewhat like a miniature eye.



Stipe -- A scientific term for "stalk".
Stipules -- Paired appendages found at the base of the leaves of many flowering plants.
Stomata -- Openings in the epidermis of a stem or leaf of a plant which permit gas exchange with the air. In general, all plants except liverworts have stomata in their sporophyte stage.
Stratigraphy -- n. The study of rock layers, especially their distribution, environment of deposition, and age; stratigraphic, adj.
Stratum -- A layer of sedimentary rock; plural is strata.
Streptophytes -- The clade consisting of the plants plus their closest relatives, the charophytes.
Strike -- The direction or trend of a bedding plane or fault, as it intersects the horizontal.
Strobilus -- A tightly clustered group of sporophylls arranged on a central stalk; commonly termed a "cone" or "flower".
Style -- The narrow stalk of the pistil, located above the ovary but below the stigma.
Subduction -- n. A geologic process in which one edge of one crustal plate is forced below the edge of another; subduct– v.; subduction zone- n. A long narrow area in which subduction is taking place, e.g. The Peru-Chile trench, where the Pacific Plate is being subducted under the South American Plate.
Subsidence -- n. The sudden sinking or gradual downward settling of the Earth's surface with little or no horizontal motion.



Substrate -- "Supporting surface" on which an organism grows. The substrate may simply provide structural support, or may provide water and nutrients. A substrate may be inorganic, such as rock or soil, or it may be organic, such as wood.

Sugar -- any of several small carbohydrates, such as glucose, which are "sweet" to the taste.

Symbiosis -- n. A relationship between two organisms that live in intimate contact with each other; includes mutualism (both organisms benefit, they rely on each other for survival), parasitism (one organism benefits at its host's expense) and commensalism (one partner benefits and the other is neither benefitted nor harmed); symbiotic- adj.

Synangium -- A cluster of sporangia which have become fused in development.

Synapomorphy -- A character which is derived, and because it is shared by the taxa under consideration, is used to infer common ancestry.

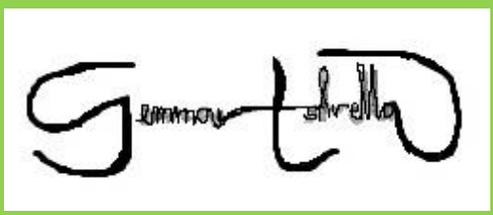
Syncline -- A fold of rock layers that is convex downwards. Antonym of anticline.

Syncytic -- see Hexactinellida

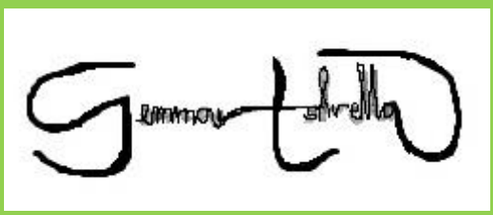
Syngamy -- The process of union of two gametes; sometimes called fertilization. It encompasses both plasmogamy and karyogamy.

Systematics -- Field of biology that deals with the diversity of life. Systematics is usually divided into the two areas of phylogenetics and taxonomy.

Taphonomy -- n. The study of the death, decay, burial, and fossilization of an organism. Essentially, taphonomy describes everything that happens to an organism between the time it dies and the moment its remains are discovered. Understanding why organisms are or are not preserved over



time helps explain the biases seen in the fossil record. Taphonomy is often broken into two parts, biostratinomy and diagenesis.
Taxon -- n. A named group of organisms, not necessarily a clade, but linked by shared physical or genetic characteristics. A taxon may be designated by a Latin name or by a letter, number, or any other symbol; taxa- pl.
Taxonomy -- The science of naming and classifying organisms.
Tectonic -- adj. Describing the forces that cause the movements and deformation of Earth's crust on a large scale, also describes the resulting structures or features from these forces.
Temperate -- Region in which the climate undergoes seasonal change in temperature and moisture. Temperate regions of the earth lie primarily between 30 and 60 degrees latitude in both hemispheres.
Tepal -- When the sepals and petals of a flower are indistinguishable, they are referred to as tepals. Tepals are common in many groups of monocots. More info?
Terrain -- n. A general term used to refer to a piece of the crust that is usually smaller than a continent but larger than an island; exotic terrain- n. Terrain that has an unknown origin or a different origin than its surrounding rocks.
Terrestrial -- Living on land, as opposed to marine or aquatic.
Test -- n. A hard shell produced by some unicellular protists; may be made of calcium carbonate, silica, or sand grains.
Tethys Ocean -- n. A small ocean that existed from the Triassic to the Jurassic; as Pangea was split into Gondwana and Laurasia in the Jurassic, an arm developed westward called the Tethys Seaway or Tethys Sea.



Thalloid -- Plants which have no roots, stems, or leaves are called thalloid, such as liverworts and hornworts.

Theca -- General term for any stiff outer covering of a unicellular protist, and usually made up of interlocking plates. Dinoflagellates and diatoms are examples of protists with thecae.

Till -- n. Unstratified glacial drift consisting of clay, sand, gravel, and boulders

Topography -- n. The relief features of the Earth's surface, above and below sea level; the set of landforms in a region.

Trace fossil -- Evidence left by organisms, such as burrows, imprints, coprolites, or footprints. Trace fossils are not preserved parts of the organism.

Tracheophyte -- Any member of the clade of plants possessing vascular tissue; a vascular plant.

Transduction -- Viral transfer of DNA to new host.

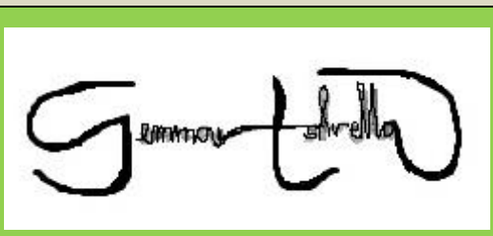
Transgression -- (n) A rise in sea level relative to the land.

Tree -- Any tall plant, including many conifers and flowering plants, as well as extinct lycophytes and sphenophytes.

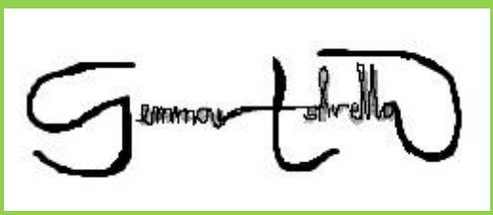
Trichocyst -- Organelle in ciliates and dinoflagellates which releases long filamentous proteins when the cell is disturbed. Used as a defense against would-be predators.

Tropical -- Region in which the climate undergoes little seasonal change in either temperature or rainfall. Tropical regions of the earth lie primarily between 30 degrees north and south of the equator.

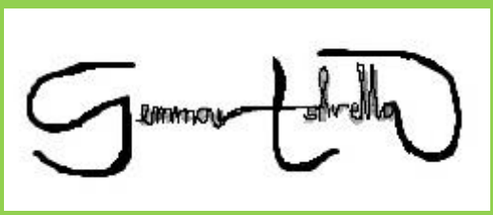
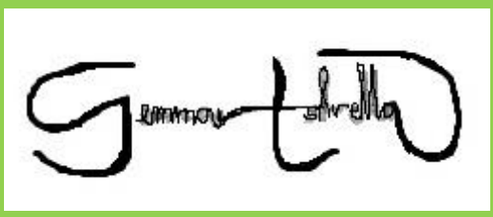
Tuber -- An underground stem which has been modified for storage of nutrients, such as a potato.



Tuff -- n. A general term for consolidated rocks made of material ejected from volcanic explosions.
Tundra -- n. A vast, mostly flat, treeless Arctic region of Europe, Asia, and North America in which the subsoil is permanently frozen. The dominant vegetation is low-growing lichens, mosses, and stunted shrubs.
Turbidite -- n. The sediments or rocks that formed as a result of a turbidity flow.
Turbidity current -- n. A bottom fast-flowing current that moves down a slope, depositing suspended sediments over the floor of a body of water
Turbidity flow -- n. A flow of dense, muddy water moving down a slope due to a turbidity current
Turgor pressure -- Force exerted outward on a cell wall by the water contained in the cell. This force gives the plant rigidity, and may help to keep it erect. More info?
Ultrastructure -- The detailed structure of a specimen, such as a cell, tissue, or organ that can be observed only by electron microscopy. Also called fine structure. In eggshell, ultrastructure refers to the three-dimensional arrangement of mineral crystals and organic matter. It is described in terms of calcite or aragonite mineralogy and the transition between different zones of organization within the shell. Distinct zones of organization are called ultrastructure zones.
Unconformity -- Any interruption of the continuity of a depositional sequence.
Undifferentiated -- adj. Unable to distinguish between. Undifferentiated rocks: rocks for which it is not possible to specify finer age divisions.
Undulipodium -- Another term for a eukaryotic flagellum.



Upland -- n. (adj.) An area that is higher relative to the surrounding areas, but not mountainous; highland– syn.; lowland– ant.
Uplift -- n. (v.) The process or result of raising a portion of the Earth's crust through different tectonic mechanisms.
Upwelling -- The raising of benthic nutrients to the surface waters. This occurs in regions where the flow of water brings currents of differing temperatures together, and increases productivity of the ecosystem.
Vacuole -- Membrane-bound fluid-filled space within a cell. In most plant cells, there is a single large vacuole filling most of the cell's volume. Some bacterial cells contain gas vacuoles.
Vegetative growth -- Growth of a plant by division of cells, without sexual reproduction.
Venation -- The arrangement and pattern of veins in a leaf.
Vicariance -- Speciation which occurs as a result of the separation and subsequent isolation of portions of an orginal population.
Volcanic -- adj. Describes the action or process of magma and gases rising to the crust and being extruded onto the surface and into the atmosphere; also applies to the resulting igneous rocks that cool on the surface of the Earth, including beneath water, which typically have small crystals due to the rapidity of cooling. Volcanically - adv. Extrusive - syn. Plutonic - ant.
Volcanic arc -- n. A curved chain of islands that rise from the sea floor, usually near a continent. The convex side usually faces the open ocean, while the concave side usually faces the continent; island arc - syn.
Volcanism -- n. The process by which magma and associated gases rise to the Earth's crust and are extruded, or expelled, onto the surface and into the atmosphere.



Weathering -- n. The physical, chemical, and biological processes by which rock is broken down into smaller pieces.
Whorl -- An arrangement of appendages, such as branches or leaves, such that all are equally spaced around the stem at the same point, much like the spokes of a wheel or the ribs of an umbrella
Wood -- A secondary tissue found in seed plants which consists largely of xylem tissue.
Xylem -- Water-conducting tissue of vascular plants.
Zooplankton -- Tiny, free-floating organisms in aquatic systems. Unlike phytoplankton, zooplankton cannot produce their own food, and so are consumers.
Zygote -- The product of gamete fusion. In organisms with a haploid life cycle, the zygote immediately undergoes meiosis, but in organisms with a multicellular diploid stage, the zygote is merely the first stage in the diploid portion of the life cycle.