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## 5 Glossary

<b>Acid</b>	Describes igneous rocks rich in silica ( $\text{SiO}_2$ more than 63%).
<b>Adit</b>	Horizontal, or nearly horizontal, tunnel or mine entrance.
<b>Alkaline</b>	Describes igneous rocks that contain more sodium and/or potassium than is required to form feldspar and hence contain, or have the potential to contain (i.e. in the norm), other alkali-bearing minerals such as feldspathoids, alkali pyroxenes and alkali amphiboles.
<b>Alluvial</b>	Environments, actions and products of rivers or streams.
<b>Amygdaloidal</b>	A texture in lava consisting of spheroidal or ellipsoidal cavities formed by gas bubbles and subsequently filled with secondary minerals such as calcite, quartz or zeolites.
<b>Annabergite</b>	Hydrated Nickel Arsenate $[\text{Ni}_3(\text{AsO}_4)_{2-8}(\text{H}_2\text{O})]$ . A bright green mineral formed as a weathering product of nickel-containing minerals such as niccolite. The characteristic green colour is easily noticeable and was used to spot veins of nickel-bearing ore.
<b>Anthracosaur</b>	A order of late Palaeozoic labyrinthodont amphibians.
<b>Anticline</b>	An arch-shaped fold in rock in which the rock layers are upwardly convex. The oldest rock layers form the core of the fold, and outward from the core progressively younger rocks occur.
<b>Argillaceous</b>	Detrital sedimentary rocks composed of very fine grain silt or clay-sized particles ( $<0.0625$ mm), usually with a high content of clay minerals.
<b>Baryte</b>	Barium sulphate $[\text{BaSO}_4]$ . A dense colourless to white mineral found in hydrothermal veins.
<b>Basalt</b>	A dark-coloured, fine-grained, usually extrusive, igneous rock composed of minerals rich in iron and magnesium and with a relatively low silica content.
<b>Basanite</b>	A dark-coloured, fine-grained, usually extrusive, igneous rock composed mainly of feldspathoid, olivine and plagioclase feldspar minerals.
<b>Basement</b>	A term usually applied to any widespread association of folded igneous and metamorphic rocks which are often unconformably overlain by relatively undeformed sedimentary rocks.
<b>Basic</b>	Describes igneous rocks relatively rich in the 'bases' of early chemistry ( $\text{MgO}$ , $\text{FeO}$ , $\text{CaO}$ , $\text{Fe}_2\text{O}_3$ ); silica ( $\text{SiO}_2$ ) is relatively low (nominally 45–52%).
<b>Bedding</b>	A feature of sedimentary rocks, in which planar or near-planar surfaces known as bedding planes indicate successive depositional surfaces formed as the sediments were laid down.
<b>Bedrock</b>	A term used to describe unweathered rock below soil or superficial deposits. Can also be exposed at the surface.
<b>Biohermal</b>	Relates to a build-up of largely in-situ organisms that produce a reef or mound of organic origin.

<b>Bioturbation</b>	The disruption of depositional sedimentary structures by organisms e.g. activities such as burrowing
<b>Bivalve</b>	class of molluscs with paired oval or elongated shell valves joined by a hinge.
<b>Blaes</b>	Scots mining term for dark blue (blae) mudstone or shale.
<b>Brachiopod</b>	A phylum of solitary marine shelled invertebrates
<b>Bravoite</b>	A variety of pyrite, nickel-rich iron sulphide, steel grey in colour
<b>Breccia</b>	Coarse-grained clastic sedimentary rock consisting of angular fragments of preexisting rocks
<b>Brickclay</b>	Mudstone used in the manufacture of structural clay products such as bricks, pavers, roofing tiles and clay pipes. Free-draining, fertile soils with brownish subsoils where iron oxides created through weathering processes are bonded to silicate clays. They are found mainly in drier climate of the east and south of Scotland, and in sheltered Highland glens at lower elevations. Also known as Brown Earths.
<b>Brown Forest Soils</b>	Calcium Carbonate [ $\text{CaCO}_3$ ] a widely distributed mineral and a common constituent of sedimentary rocks, limestone in particular. Also occurs as stalactites and stalagmites and is often the primary constituent of marine shells.
<b>Calcite</b>	A group of minerals whose bulk composition consists of calcium silicates.
<b>Calcsilicate</b>	Refers to a major mountain-building (orogenic) event related to the closure of the Iapetus Ocean during the Late Palaeozoic Era (Cambrian, Ordovician and Silurian Periods). It affected Scotland, Ireland, Scotland, Scandinavia and Greenland.
<b>Caledonian</b>	A geological period [354–290 Ma] preceded by the Devonian and followed by the Permian.
<b>Carboniferous</b>	A dense, microcrystalline form of silica which occurs as nodules or beds within parts of the Carboniferous succession of rocks
<b>Chert</b>	A large-scale spatially related assemblage of igneous rock units possibly, but not necessarily, with complicated igneous and/or tectonic relationships and of various ages and diverse origins.
<b>Complex</b>	Hard, compact mass, usually rounded, in a sedimentary rock, formed by precipitation of a cementing mineral around a nucleus during or after deposition.
<b>Concretion</b>	A sedimentary rock, a significant proportion of which is composed of rounded pebbles and boulders, greater than 2mm in diameter, set in a finer-grained groundmass.
<b>Conglomerate</b>	The recrystallisation of country rocks when intruded by hot igneous rocks. Also known as thermal metamorphism.
<b>Contact metamorphism</b>	Particle of broken down rock, eroded and deposited in a new setting.
<b>Clast</b>	Applies to the texture of rocks which are comprised of fragments of pre-existing rocks which have been weathered or eroded.
<b>Clastic</b>	A bedded impure iron-ore, the iron occurring as siderite.
<b>Clayband ironstone</b>	

<b>Columnar jointing</b>	The crudely polygonal system of vertical joints formed in response to cooling of bodies of intrusive igneous rocks such as sills and dykes.
<b>Cross-bedding</b>	Cross-stratification formed by the migration of dunes and sand waves on a sediment surface.
<b>Cross-lamination</b>	Cross-stratification formed by the migration of ripples on a sediment surface. Foresets less than 10 mm thick.
<b>Cross-stratification</b>	A family of primary sedimentary structures formed by the migration of slip-faces of ripples and dunes in granular sediments. Characterised by internally inclined layers (foresets) bounded by planar surfaces.
<b>Crust</b>	The crust is the outermost layer of rocks making up the solid Earth. It is distinguished from the underlying mantle rocks by its composition, lower density, and the lower velocity at which it conducts seismic energy.
<b>Dalradian</b>	A Supergroup representing the youngest stratigraphic division of the Precambrian in Scotland and Ireland.
<b>Desiccation cracks</b>	Or shrinkage cracks are polygonal cracks formed in a sediment as it dries out in a terrestrial environment.
<b>Devensian</b>	The last glacial stage in Britain, lasting from around 70,000 BP (Before Present) to about 10,000 BP.
<b>Devonian</b>	A geological system [418–354 Ma], oldest of the Upper Palaeozoic erathem, preceded by the Silurian system and followed by the Carboniferous.
<b>Dinantian</b>	The Lower Carboniferous sub-system, [354–326 Ma] comprising the Visèan and the Tournaisian Series.
<b>Dolerite</b>	A dark coloured, medium grained igneous rock which contains the minerals plagioclase and pyroxene. Commonly found as dykes and sills.
<b>Dolomite</b>	Calcium magnesium carbonate, A sedimentary rock-forming mineral $[\text{CaMg}(\text{CO}_3)_2]$ .
<b>Dolostone (Cementstone)</b>	A sedimentary rock usually formed by the dolomitization (diagenetic conversion of calcium carbonate to calcium magnesium carbonate) of limestones.
<b>Drumlin</b>	A drumlin (Gaelic druim the crest of a hill) is an elongated whale-shaped hill formed by glacial action. Its long axis is parallel with the movement of the ice, with the blunter end facing into the glacial movement. Drumlins may be more than 45 m high and more than 0.8 km long, and are often in drumlin fields of similarly shaped, sized and oriented hills.
<b>Dyke</b>	Discordant, sheet-like bodies of intrusive igneous rock in a vertical, or near-vertical orientation
<b>Echinoid</b>	Marine animals belonging to the class Echinoidea (part of the phylum Echinodermata). Fossil records show that they first appeared in the Ordovician and are extant today, with approximately 1000 living species.
<b>Erythrite</b>	Hydrated Cobalt Arsenate $[\text{CO}_3(\text{AsO}_4)_{2-8}(\text{H}_2\text{O})]$ . A bright red-purple mineral formed as a weathering product of cobalt-containing minerals such as cobaltite. The characteristic red-purple colour is easily noticeable and was used to spot veins of cobalt-bearing ore.

<b>Eurypterid</b>	Dominantly aquatic arthropods commonly having a pair of swimming and digging appendages and an anterior pair of food-gathering pincers, usually small, termed chelicerae. They first appeared in the early Ordovician but became extinct in the Permian. Also known as sea-scorpions they were typically 100 to 450 mm long but the largest known species reached 2.5 m.
<b>Eustatic</b>	World-wide changes in sea-level caused either by tectonic movement or growth or melting of glacial ice-sheets.
<b>Evaporite</b>	Sedimentary rock formed by the precipitation of salts from natural brines.
<b>Extrusive</b>	Refers to igneous rocks which have been extruded onto the Earth's surface, rather than being intruded beneath the surface (intrusive).
<b>Facies</b>	The characteristic features of a rock unit, including rock type, mineralogy, texture and structure, which together reflect a particular sedimentary, igneous or metamorphic environment and/or process.
<b>Fault</b>	A fracture in the Earth's crust across which the rocks have been displaced relative to each other.
<b>Felsite</b>	A general term used to denote light-coloured, fine-grained igneous rocks
<b>Fireclay</b>	Sedimentary mudstones that occur as seatearths underlying almost all coal seams. They represent fossil soils on which the coal-forming vegetation grew. The term was originally derived from their ability to resist heat. They are mainly used in the manufacture of high-quality facing bricks.
<b>Fluvial</b>	Referring to a river environment.
<b>Fluviodeltaic</b>	Refers to sediments deposited by fluvial processes in a deltaic environment.
<b>Fluviolacustrine</b>	Refers to sedimentation partly in lakes and partly in rivers, or to deposits laid down under alternating or overlapping lacustrine and fluvial environments.
<b>Footwall</b>	The fault block which lies below an inclined fault surface.
<b>Gabbro</b>	A dark-coloured, coarse-grained igneous rock consisting mainly of plagioclase feldspar and pyroxene. Is low in silica and may contain biotite, olivine and magnetite.
<b>Galena</b>	Lead Sulphide [PbS], a dense lead to silver grey mineral with a bluish tint. It may contain up to 1% Silver in place of lead and is the leading ore of Silver.
<b>Gangue</b>	Generally valueless mineral or rock which accompanies an ore
<b>Glaciofluvial</b>	Refers to sediments deposited by flowing glacial meltwater A texturally immature sedimentary rock containing larger grains in a fine-grained matrix of clay-and silt-sized particles.
<b>Greywacke</b>	The larger grains may range from sand- to gravel-sized particles and are composed of quartz, rock fragments and feldspar. In a greywacke, the matrix materials should constitute more than 15% by volume.
<b>Hanging-wall</b>	The fault block which lies above inclined fault surface.
<b>Holocene</b>	The youngest epoch of the Quaternary Period. Covers the last 10,000 years.

<b>Hornfels</b>	A fine-grained rock that has been partly or completely recrystallised by contact (thermal) metamorphism.
<b>Gley</b>	A poorly-draining soil that develops under periodic or permanent waterlogging, with characteristic bluish-grey subsoil. The dominant soil types on the glacial tills of central Scotland.
<b>Igneous rock</b>	A rock formed by the crystallisation of molten magma.
<b>Intrusive</b>	Refers to igneous rocks which have been intruded into older rocks beneath the Earth's surface, rather than being extruded onto the surface.
<b>Ironstone</b>	Iron-rich sedimentary rock, the amount of iron found may permit the extraction of iron ore.
<b>Lacustrine</b>	Refers to a lake environment.
<b>Lithodiversity</b>	The diversity or range of lithology (rock type).
<b>Lithology</b>	The character of a rock expressed in terms of its mineral composition, structure, grain size and arrangement of its constituents.
<b>Lode</b>	Mineral vein or system of veins. Refers to productive veins only. Mostly commonly used in Cornwall.
<b>Loxommatid</b>	Large "amphibian" predator of the Late Carboniferous period.
<b>Meltwater</b>	Water produced by melting of snow or ice.
<b>Mesotrophic</b>	This term is applied to clear water lakes and ponds with beds of submerged aquatic plants and medium levels of nutrients.
<b>Metamorphic basement</b>	See Basement.
<b>Metamorphism</b>	The process of changing the mineralogy and structure of a rock as a result of the effects of heat and/or pressure.
<b>Mineralisation</b>	Conversion of organic tissues to an inorganic state as a result of decomposition by soil micro-organisms. The hydrothermal deposition of economically important metals in the formation of ore bodies.
<b>Namurian</b>	The lowermost series of the Silesian sub-system of the Carboniferous [326316 Ma].
<b>Niccolite</b>	A former name for nickeline, a lead-grey, black or copper-coloured mineral consisting of Nickel Arsenide [NiAs]. The chief ore of Nickel.
<b>Oil-Shale</b>	Shale that contains organic substances that yield liquid hydrocarbons on distillation, but does not contain free oil.
<b>Ostracod</b>	A class of crustacean, typically about 1 mm in size, hinged into two calcareous valves. The fossil record indicates that they first appeared in the Cambrian and are still present today. They belong to the phylum Arthropoda.
<b>Overfold</b>	An overturned fold, in which the axial plane is inclined so that the fold limbs dip in the same direction.
<b>Palaeoecology</b>	The application of ecological concepts to the study of the relationship between ancient organisms and their environments.
<b>Palaeosol</b>	A fossilised soil.
<b>Porphyritic</b>	Textural term for igneous rocks in which large crystals, called phenocrysts, are set in finer groundmass, which may be crystalline or glass or both.

<b>Periglacial</b>	Conditions, processes and landforms associated with cold, nonglacial environments.
<b>Petrography</b>	The study of the mineralogy, texture and systematic classification of rocks, especially under the microscope.
<b>Picrite</b>	A term originally used to describe a variety of dolerite or basalt extremely rich in olivine and pyroxene. Chemically defined as a group name for rocks with $\text{SiO}_2 < 47\%$ , total alkalis $< 2\%$ and $\text{MgO} > 18\%$ .
<b>Plug</b>	Solidified lava that fills the conduit of a volcano. It is usually more resistant to erosion than the material making up the surrounding cone, and may remain standing as a solitary pinnacle when the rest of the original structure has eroded away.
<b>Podzol</b>	Podzol soils have distinct layers or horizons and are widespread throughout Scotland, generally associated with acid parent material and semi-natural heath or coarse grassland vegetation and coniferous woodland. They are characteristic of any topographic position where aerobic conditions prevail and water can percolate freely through the upper part of the profile. They are found at all elevations from sea level to the summit of the Cairngorms.
<b>Pyroclastic</b>	Describes unconsolidated deposits (tephra) and rocks that form directly by explosive ejection from a volcano.
<b>Pyroclastic breccia</b>	A rock comprising predominantly angular pyroclasts with an average size greater than 64 mm in diameter.
<b>Sandstone dyke</b>	A sheet-like body on sand or sandstone cutting through a bedded sediment or sedimentary rock formed by the upwards injection of liquefied sand through a fissure, often as a result of seismic activity.
<b>Scoriaceous</b>	A term applied to vesicular lava or pyroclastic rock with a bubbly or frothy texture.
<b>Seatearth</b>	A highly siliceous seatearth. It is also known as ganister.
<b>Seatearth</b>	A bed of rock underlying a coal seam, representing a fossil soil that supported the vegetation from which the coal was formed.
<b>Seatrock</b>	An alternative term for seatearth.
<b>Sedimentology</b>	The study of sedimentary rocks and of the processes by which they were formed; the description, classification, origin, and interpretation of sediments.
<b>Sedimentary rock</b>	A rock formed in one of three main ways: by the deposition of the weathered remains of other rocks (clastic sedimentary rock); by the deposition of the results of biogenic activity; and by precipitation from solution. Four basic processes are involved in the formation of a clastic sedimentary rock: weathering (erosion), transportation, deposition and compaction.
<b>Serpentine</b>	A green-coloured magnesium-rich phyllosilicate mineral often associated with ultrabasic igneous rocks. Serpentinite is a rock composed largely of serpentine.

<b>Siderite</b>	Iron Carbonate, a yellowish-brown mineral [FeCO <sub>3</sub> ], most often found in bedded sedimentary deposits with a biological component, such as shales, clays and coal. It is also found in metamorphosed sedimentary rocks as more massively crystalline material, as a gangue mineral in hydrothermal deposits, and in pegmatites.
<b>Silesian</b>	The Upper Carboniferous sub-system, [326–299 Ma] comprising the Namurian and Westphalian Series.
<b>Sill</b>	A tabular body of igneous rock, originally intruded as a sub-horizontal sheet and generally concordant with the bedding or foliation in the country rocks.
<b>Silurian</b>	A geological system [433–418 Ma], youngest of the Lower Palaeozoic erathem, preceded by the Ordovician and followed by the Devonian.
<b>Solifluction</b>	Solifluction is a slow downslope flow of water-saturated fragmental material or soil. It is promoted by the existence of permafrost which traps snow and ice melt within the surface layer making it more fluid.
<b>Spherulitic</b>	A texture consisting of a spherical mass of acicular crystals, commonly feldspar, radiating from a central point; commonly found in glassy silicic volcanic rocks as a result of devitrification.
<b>Stephanian</b>	The uppermost series of the Silesian sub-system of the Carboniferous [305–299 Ma].
<b>Strata</b>	Rocks that form layers or beds.
<b>Stratabound</b>	Mineral deposit or mineralisation confined to a particular stratigraphic unit
<b>Stratigraphy</b>	The definition and description of the stratified rocks of the Earth's crust.
<b>Strike-slip</b>	A term used to describe a fault on which the sense of movement is at right angles to the direction of inclination on the fault.
<b>Subaerial</b>	Located or occurring on or near the surface of the earth.
<b>Syncline</b>	A basin- or trough-shaped fold in rock in which rock layers are downwardly concave. The youngest rock layers form the core of the fold and outward from the core progressively older rocks occur.
<b>Tephra</b>	An unconsolidated accumulation of pyroclasts.
<b>Teschenite</b>	Generally dark-coloured, medium to coarse-grained igneous rock. It is undersaturated (with respect to silica).
<b>Tetrapod</b>	A vertebrate animal with four feet, legs, or leglike appendages.
<b>Trace fossil</b>	A biogenic sedimentary structure formed by behavioural activity of an organism, e.g. tracks, trails, burrows, and borings.
<b>Tuff</b>	A rock comprising pyroclasts with average grain size less than 2 mm.
<b>Unconformable</b>	A term generally applied to applied to younger strata that do not conform in position or that do not have the same dip and strike as those of the immediately underlying rocks. Also applies to the contact between unconformable rocks.

**Unconformity**

A surface of contact between two groups of unconformable strata. Represents a break in the geological record where a combination of erosion and lack of deposition was taking place.

**Vent**

The opening at the earth's surface through which volcanic materials erupt or flow.

**Vesicular**

A texture in lava consisting of bubble-shaped cavities formed by expansion of trapped gases.

**Visèan**

The uppermost series of the Dinantian sub-system of the Carboniferous [342326 Ma].

**Volcaniclastic**

Refers to elastic rocks or sediments composed mainly of particles of volcanic origin.

**Westphalian**

The middle series of the Silesian sub-system of the Carboniferous [3 16305 Ma].

**Xenolith**

A rock fragment foreign to the igneous rock in which it occurs.