



Geoscape Ottawa-Gatineau

Grade 7 Lesson Plans to accompany the Geoscape Ottawa-Gatineau poster and website
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Glossary of Key Terms

Abrasion - process of wearing away by friction

Accumulate - gather together or increase in quantity

Active – still functioning or moving

Aggregate – mineral material (sand, gravel, crushed rock) with which cement is mixed to form a hard substance such as concrete or mortar

Apatite - a mineral group of which fluorapatite is most common. Usually white or green. Chief mineral of phosphate rocks. The name comes from the Greek word “apate” which means “deceit” because it is often confused with other gem minerals like beryl, olivine (peridot), and fluorite.

Aquifer – layer or zone below the earth’s surface that can contain water (like a sponge) and is able to supply water for wells.

Aquitard – a layer of rock or sediment that will prevent infiltration or movement of water or will not transmit water quickly enough to fill a well. It may store some groundwater but flow will be slow.

Bedrock – solid rock exposed at the surface or underneath soil and loose sediments

Beach – a strip of sediments, usually sand but sometimes pebbles, that extends from the water line usually to a zone of permanent vegetation.

Biotite – black member of the mica mineral group. A common rock-forming mineral.

Bluff – a steep cliff or bank

Bog – a wetland area commonly covered by peat

Bonding – a strong force holding or joining things together

Brucite – a mineral, $\text{Mg}(\text{OH})_2$, found in foliated or leafy masses

Canadian Shield – (also called the Precambrian Shield) - a vast horseshoe-shaped area of mostly igneous and metamorphic rock that extends around Hudson Bay covering eastern and central Canada and a small part of the northern United States. The rocks of the Canadian Shield were formed in Precambrian times over 570 million years ago.

Calcite – calcium carbonate, a clear mineral that is relatively soft and reacts with acids such as vinegar. Principal mineral of limestone.

Carbide – a compound of carbon with a metal or other element

Catastrophic – description of a sudden violent change in the physical condition of the Earth’s surface

Cement – A material that hardens and acts as an adhesive. Commercial cement is derived from limestone.

Cenozoic – The most recent era in geologic time. From 65 million years ago to the present.

Cephalopod – fossil of marine invertebrate that has either a straight or spirally coiled shell divided into many internal chambers.

Clay – 1.) very fine grain size (< 1/256 mm); 2.) also refers to the sediment formed of clay-sized particles. Clay sediment can be fluid when moist but hard when dried. 3.) can also apply to clay-group minerals – finely crystalline hydrous silicates.

Cluster – group of ‘things’ gathered closely together

Compress – to press, squeeze or force things together or into a smaller space

Concentration – the amount of a given substance in a mixture or solution expressed as a percentage or ppm (parts per million)

Concrete – mixture of gravel, sand, cement and water, which hardens to a rock-like mass when dried

Confluence – the junction or meeting point of two rivers

Corals – marine invertebrates that form the calcified skeletons of organisms that live in salt waters along coasts. Some are individual but the majority grow in colonies. Major reef building organism.

Crinoid – marine organism the first appeared in the Cambrian period and is still in existence in present time. It looks like a beautiful, flower shaped animal.

Dam – a barrier used to hold back water, usually built across a river to slow or stop water flow

Debris – fragmented “loose” material resulting from the disintegration of more solid sediment or rock. May refer to the material that has moved in a landslide.

Delta – 1.) deposit of alluvial sediment formed at the mouth of a river as it enters a larger waterbody. 2.) Also refers to the landform, which may be triangular shaped and divided by several channels at the river mouth.

Depressurize – decrease the pressure

Descend – to move in a downward direction

Dike – (flooding) a barrier built around a low-lying area to prevent flooding from a river etc.

Dikes – (rock) a body of igneous rock that cuts across the structure of adjacent rocks or cuts massive rocks as a magma intrusion

Dilute – the process of making a substance thinner or weaker

Discharge – volume/time; the volume of water that moves past a specific position during a specific interval of time

Dolomite – 1.) calcium magnesium carbonate, a white mineral similar to calcite. A major source of magnesium, particularly for agricultural and pharmaceutical applications. 2.) Also refers to sedimentary rock formed of dolomite.

Dolostone – a sedimentary rock composed mainly of dolomite

Domino-like fashion – an effect where one action leads to a continuous repetition of the action; similar to a chain reaction

Downstream – in the direction of the flow of water of a river

Earth's Crust – the outer layer of the Earth that is composed of solid rocks

Elevation – height above sea level

Embankments – 1.) natural or man-made wall or bank that prevents flooding; 2.) a steep erosional slope

Embed – the action of placing something firmly in a surrounding mass

Era – a major division of geological time (Paleozoic, Mesozoic and Cenozoic)

Erode – to wear away; slow to rapid

Erosion – the process of something wearing away

Erratic – boulder transported and deposited by glacier; rock type commonly differs from local bedrock.

Excavation – low area where contents have been removed; may be an area where layers of soil or other material are systematically displaced and recorded in order to examine past activity

Fault – a long break (fracture) across layers of rock, along which there has been displacement of one side relative to the other; caused by the moving of the Earth's crust

Feldspar – (K feldspar) an important group of rock-forming minerals. Commonly seen as the pink mineral in igneous rock (K feldspar) or greyish white (plagioclase)

Flood – when river discharge overtops the banks and overflows onto normally dry land

Flood zone – area prone to flooding

Flooding - overfull with water; "swollen rivers and creeks"

Flood-prone land – areas particularly vulnerable to flooding

Flow rate – the speed at which water moves

Fossil assemblage – fossils naturally associated together in a rock unit. Associated with a specific time period and environment

Fossil – either the remains or the traces of a plant or animal that has been preserved by natural causes and hardened into rock. (an example of a trace fossil would be a worm burrow)

Foundation – the part of a building that is in contact with or in the ground

Framework – the supporting structure

Garnet – A semi precious mineral that is typically brownish red in colour, commonly found in twelve-sided crystals (dodecahedrons) Used as a gem or an abrasive.

Geologist – one who understands and investigates the physical processes, structure, and history and materials of the Earth

Geotechnical Engineer – An engineer who specializes in the study and use of soil and rock mechanics and geology, as applied to construction, mineral extraction and environmental problems

Glacial –relating to the glaciers

Glacier – a large mass of ice, formed from compressed and recrystallized snow, which has accumulated over years and moves slowly downslope or outward, due to the stress of its own weight

Gneiss – a coarse-grained metamorphic rock with a banded structure most often consisting of feldspar, quartz and mica.

Graben – a block, generally long compared to its width, that has been downthrown (vertically displaced) along faults relative to the rocks on either side; also known as a rift valley.

Granite – a coarse-grained igneous rock made up of quartz, feldspar and often mica.

Granitic – something composed of granite or granite-like rock

Graphite – very soft metallic mineral used for "Pencil lead", has a dark grey streak.

Gravel –sediments composed of loose, often rounded, fragments of rock that have a size that is greater than 2 mm (larger than sand); includes granules, pebbles and cobbles, sometimes boulders.

Greenbelt – land where building is prohibited or restricted in order to preserve green space in an urban environment

Grist – grain that is, or will be ground.

Headwaters –the source of a river

Horticultural – the cultivation and management of gardens

Ice Age – a period in the Earth's history when much of its surface was covered by glaciers

Impervious – not allowing liquid to pass through

Infiltrate – to slowly pass through or into something

Infiltration – the process of passing through something

Infrastructure – the basic facilities that are needed to properly operate a society or organization (i.e. transportation, power, and communication lines, and water supply, power plants, etc.)

Intensity – (earthquake) a measure of how an earthquake effects humans or structure in a specific location; depends on strength (magnitude) of the earthquake but also on the distance from the earthquake and the geology of the specific location. Measured on the Mercalli Scale.

Interlude – a definite period of time, represented by a distinct event that is different from what happened before and after

Interval – a definite length of time with a specific start and end time

Intrusion – when magma pushes its way into older rocks and solidifies before reaching the surface. This solid magma forms plutonic igneous rocks such as granite, or dikes.

Inundate – to flood

Iron – a grey coloured metal that has magnetic properties

Landscape – the visible characteristics of an area of land

Landslide – soil, sediment or rocks that become detached and move downslope as a slide, flow, fall, or topple. Landslides in the Ottawa area generally occur as flows in marine clay sediments.

Leach – the process of removing a soluble substance (i.e. salt) from sediment by water passing through it

Lead – a heavy, bluish-grey, metallic element

Leda Clay – informal name for a sensitive marine clay commonly found in the St. Lawrence Lowlands. It has an unstable particle structure and high natural moisture content, so that, when disturbed, it may lose its strength, turn into a liquid mud, and flow as a landslide.

Limestone – a hard sedimentary rock primarily made up of calcium carbonate. In the Ottawa-Gatineau area, limestone contains many marine fossils.

Liquefy – the process of turning into a liquid

Lowland – low-lying, relatively flat, geographic area with very little change in elevation.

Magma – a hot, mobile, “liquid” rock found beneath the earth’s crust. Source of igneous rocks when cooled and solidified.

Magnitude (Earthquake)– a measure of the strength of an earthquake in terms of the total energy released by it. Determined by seismic instruments. Measured on Richter Scale.

Magnitude (General) –relative size or extent

Marble –a metamorphic rock, composed of calcite and dolomite, which has been recrystallized under high pressure and heat.

Matrix – the finer grain sizes in a mixture of varying grain sizes

Meltwater – water that results from melting snow or ice

Mesozoic –era with the first evidence of mammals and birds; 245 to 65 million years ago; between the Paleozoic and Cenozoic eras

Metamorphic – rock changed by process of metamorphism

Metamorphose – to change by process of metamorphism

Metamorphism – process by which rocks are changed in composition, texture, or structure, by intense heat, pressure, or new chemical substances.

Mica – common rock-forming mineral group, usually translucent and formed in layers of thin sheets that can be easily separated. Colours may vary from yellowish to black.

Mineral – any natural, inorganic substance with a distinct chemical composition found in, or on, the Earth.

Molybdenum – a very soft, silver-coloured element that is sometimes used in the production of steel. It feels greasy to the touch and has been used as a powdered lubricant.

National Building Code – A list of government requirements that must be followed for the construction of buildings in Canada.

Outcrop – part of a rock formation that can be seen on the surface

Paleozoic –era between the Precambrian era and the Mesozoic era; 570 to 245 million years ago

Particle – very small piece of rock; together with other particles they form a sediment

Peat – partially decomposed vegetation, commonly moss and sedges that grow in bogs, marshes and other wet places. Dried peat is used in gardening or as fuel

Peatland – an area of land rich in peat

Pebble – small rock fragments (2 mm- 64 mm size)

Plains – a relatively flat landform

Plucking – the process of glacial erosion in which bedrock is frozen to the base of the glacier and pieces of the bedrock are pulled off by the moving ice.

Porous – having small spaces (voids) that may be filled with liquid or air. If voids are interconnected, water may pass through the rock or sediment.

Postglacial – events that have taken place after the Ice Age

Power dam – a dam to control flow of a river for a hydroelectric plant

Precambrian – all geological time before the Cambrian era; the earliest age in the history of the Earth which began 4.6 billion years ago and ended 570 million years ago with the increased appearance of living organisms

Process – a specific action that produces a geological or geomorphologic result

Pyrite – often called "Fool's Gold", a yellowish-gold metallic coloured mineral made up of iron and sulphur.

Quarry – an open excavation (hole)dug in rock from which rock and/or minerals have been extracted for commercial use

Quartz: - a very common rock-forming mineral (SiO_2) that is very hard and is usually milky white to clear in colour; Mineral may be small to large sized; often occurs as large crystals in igneous/metamorphic rock; quartz sand grains in sandstone. Coloured quartz may be used as semi-precious gemstones (Amethyst, citrine).

Quartzite – a hard metamorphic rock which is granular and primarily consists of quartz; metamorphosed from sandstone.

Quaternary – the most recent period in the Cenozoic era (1.64 million years ago to present time); includes the Ice Age and modern history. Although the name is still commonly used, recent changes have removed Quaternary from the Stratigraphic Time Chart, instead dividing the Cenozoic into _____.

Radioactive – something which emits or gives out harmful radiation

Radiometric age – the age of a fossil or rock in years, determined by radioactive decay of natural radioactive elements. The original radioactive element (parent) changes into another element (daughter) by emitting charged particles from the nuclei of its atoms. The radiometric age is determined using the ratio of parent to daughter elements in the sample.

Radon – a radioactive gas; element 86, the heaviest of the gas group

Reactivate – to start motion or process after a period of inactivity

Recharge – the process of adding water to ground water, usually by precipitation.

Relocate- the process of moving to a new place

Reservoir – 1.) a contained body of water behind a dam. Commonly used as a water supply for domestic use or power generation. 2.) a natural underground layer trapping and storing oil, gas or water because of the composition and structure of the local geology

Retain – to hold something

Retreat – (**glacial**) the gradual (year after year) melting of a glacier or ice sheet which causes it to reduce in size and the ice front to recede from its former position (Note: although the front is receding, the direction of ice flow is always forward. Speed of melting simply exceeds speed of ice flow.)

Risk – a hazardous situation where physical danger or economic loss could result

Runoff – the discharge of water from the land through streams

Rural – land in the countryside rather than in the city

Sand – 1.) grain size 1/16 to 2 mm; 2.) a deposit formed by an accumulation of sand sized grains (e.g. delta, beach)

Sandstone – a sedimentary rock made of sand grains (commonly quartz) that have been compressed together.

Scarp – steep bank or cliff

Sediment – loose pieces or particles of rock and minerals that were transported and deposited by water, ice or wind. Sediments that become cemented together form sedimentary rocks. Quaternary sediments generally remain unconsolidated (loose)

Sedimentary Rocks – rocks formed from consolidation of sediment (sandstone, shale), from precipitation from solution (gypsum), or from secretions of organisms (limestone)

Seismic – referring to earthquakes or earth vibrations

Seismograph - instrument that records the motions (seismic waves) of the Earth's crust

Seismogram – The paper or digital record made by a seismograph

Seismological data – information derived from seismogram about the Earth's motion, particularly during earthquakes

Seismologist – one who studies the science of earthquakes

Shale – a soft sedimentary rock with thin, flat layers (beds); formed from compressed clay.

Silt – 1.) fine grain size (1/256 to 1/16 mm) mid-way between sand and clay; 2.) sediment made of silt-sized particles

Siltation – the build-up of silt. Also refers to the dispersal of fine particles within water during transportation

Silver – a precious metallic element

Slippage – movement between two layers of rock or sediments in which the upper layer moves downslope relative to the lower layer

Slope – an inclined surface, measured as a change in elevation of a surface over a specific distance

Soil – loose, weathered material containing organic matter, water, and air, usually forming the top layer of the ground in which plants can grow

Southeastward – moving or pointing towards the south-east

Stress – a force which can cause deformation or rupture

Sulphurous Water – water that contains sulphur which is harsh or corrosive

Susceptible – likely to be affected or influenced by a process or event

Tectonic Plate Boundary – the boundary between two tectonic plates

Tectonic Plates – large, rigid segments that make up the Earth's crust and move relative to one another on the outer surface of the Earth

Temperate – an area where the temperature is mild

Till – sediment deposited by a glacier, consists of a loose to semi-compact mixture of clay, silt, sand, pebbles, cobbles and boulders

Traverse – to travel across or through

Tributary – a river or stream that flows into a larger one

Trilobite – an important early (Paleozoic) fossil of an extinct marine animal with a body divided into three lobes

Underlain – has something situated underneath

Underlie – to be located below something

Undulating – having a wavy form

Unstable – something that is likely to change

Uplands – an high area of hilly land

Upstream – moving in the opposite direction to flowing water

Uranium – a radioactive element found naturally in certain rocks and used as fuel in nuclear reactors

Urbanize – the process of becoming a densely populated area or city

Volcanic Rock – igneous rock resulting from the hardening of lava that is ejected or pours out from the surface

Watershed – the total area of land, including waterbodies, drained by a river and its tributaries; drainage basin

Westward – moving or pointing towards the west

Wetland – land which is commonly wet (bog, fen, marsh, swamp)

Zinc – a silvery coloured metallic element, used in making brass and coating iron and steel to prevent corrosion