Ch.15 Glossary

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| **area strip mining** | Type of surface mining used where the terrain is flat. An earthmover strips away the overburden, and a power shovel digs a cut to remove the mineral deposit. After removal of the mineral, the trench is filled with overburden, and a new cut is made parallel to the previous one. The process is repeated over the entire site. Compare dredging, mountaintop removal, open-pit mining, subsurface mining. |
| **contour strip mining** | Form of surface mining used on hilly or mountainous terrain. A power shovel cuts a series of terraces into the side of a hill. An earthmover removes the overburden, and a power shovel extracts the coal, with the overburden from each new terrace dumped onto the one below. Compare area strip mining, dredging, mountaintop removal, open-pit mining, subsurface mining. |
| **convergent plate boundary** | Area where earth's lithospheric plates are pushed together. See subduction zone. Compare divergent plate boundary, transform fault. |
| **core** | Inner zone of the earth. It consists of a solid inner core and a liquid outer core. Compare crust, mantle. |
| **crust** | Solid outer zone of the earth. It consists of oceanic crust and continental crust. Compare core, mantle. |
| **depletion time** | The time it takes to use a certain fraction, usually 80%, of the known or estimated supply of a nonrenewable resource at an assumed rate of use. Finding and extracting the remaining 20% usually costs more than it is worth. |
| **divergent plate boundary** | Area where earth's lithospheric plates move apart in opposite directions. Compare convergent plate boundary, transform fault. |
| **earthquake** | Shaking of the ground resulting from the fracturing and displacement of rock, which produces a fault, or from subsequent movement along the fault. |
| **economic depletion** | Exhaustion of 80% of the estimated supply of a nonrenewable resource. Finding, extracting, and processing the remaining 20% usually costs more than it is worth. May also apply to the depletion of a renewable resource, such as a fish or tree species. |
| **erosion** | Process or group of processes by which loose or consolidated earth materials are dissolved, loosened, or worn away and removed from one place and deposited in another. See weathering. |
| **geology** | Study of the earth's dynamic history. Geologists study and analyze rocks and the features and processes of the earth's interior and surface. |
| **high-grade ore** | Ore that contains a fairly large amount of the desired mineral. |
| **identified resources** | Deposits of a particular mineral-bearing material of which the location, quantity, and quality are known or have been estimated from direct geological evidence and measurements. Compare undiscovered resources. |
| **igneous rock** | Rock formed when molten rock material (magma) wells up from the earth's interior, cools, and solidifies into rock masses. Compare metamorphic rock, sedimentary rock. See rock cycle. |
| **lithosphere** | Outer shell of the earth, composed of the crust and the rigid, outermost part of the mantle outside the asthenosphere; material found in earth's plates. See crust, mantle. |
| **low-grade ore** | Ore that contains a smaller amount of the desired mineral. |
| **magma** | Molten rock below the earth's surface. |
| **mantle** | Zone of the earth's interior between its core and its crust. Compare core, crust. See lithosphere. |
| **metamorphic rock** | Rock produced when a preexisting rock is subjected to high temperatures (which may cause it to melt partially), high pressures, chemically active fluids, or a combination of these agents. Compare igneous rock, sedimentary rock. See rock cycle. |
| **mineral** | Any naturally occurring inorganic substance found in the earth's crust as a crystalline solid. See mineral resource. |
| **mineral resource** | Concentration of naturally occurring solid, liquid, or gaseous material in or on the earth's crust in a form and amount such that extracting and converting it into useful materials or items is currently or potentially profitable. Mineral resources are classified as metallic (such as iron and tin ores) or nonmetallic (such as fossil fuels, sand, and salt). |
| **mountaintop removal** | Type of surface mining that uses explosives, massive shovels, and even larger machinery called draglines to remove the top of a mountain to expose seams of coal underneath a mountain. Compare area strip mining, contour strip mining. |
| **nanotechnology** | Using atoms and molecules to build materials from the bottom up using the elements in the periodic table as its raw materials. |
| **open-pit mining** | Removing minerals such as gravel, sand, and metal ores by digging them out of the earth's surface and leaving an open pit. Compare area strip mining, contour strip mining, dredging, mountaintop removal, subsurface mining. |
| **ore** | Part of a metal-yielding material that can be economically and legally extracted at a given time. An ore typically contains two parts: the ore mineral, which contains the desired metal, and waste mineral material (gangue). |
| **other resources** | Identified and undiscovered resources not classified as reserves. Compare identified resources, reserves, undiscovered resources. |
| **overburden** | Layer of soil and rock overlying a mineral deposit. Surface mining removes this layer. |
| **plate tectonics** | Theory of geophysical processes that explains the movements of lithospheric plates and the processes that occur at their boundaries. See lithosphere, tectonic plates. |
| **plates** | See tectonic plates. Various-sized areas of the earth's lithosphere that move slowly around with the mantle's flowing asthenosphere. Most earthquakes and volcanoes occur around the boundaries of these plates. See lithosphere, plate tectonics. |
| **reserves** | Resources that have been identified and from which a usable mineral can be extracted profitably at present prices with current mining technology. See identified resources, undiscovered resources. |
| **rock** | Any material that makes up a large, natural, continuous part of the earth's crust. See mineral. |
| **rock cycle** | Largest and slowest of the earth's cycles, consisting of geologic, physical, and chemical processes that form and modify rocks and soil in the earth's crust over millions of years. |
| **sedimentary rock** | Rock that forms from the accumulated products of erosion and in some cases from the compacted shells, skeletons, and other remains of dead organisms. Compare igneous rock, metamorphic rock. See rock cycle. |
| **smelting** | Process in which a desired metal is separated from the other elements in an ore mineral. |
| **spoils** | Unwanted rock and other waste materials produced when a material is removed from the earth's surface or subsurface by mining, dredging, quarrying, and excavation. |
| **strip mining** | Form of surface mining in which bulldozers, power shovels, or stripping wheels remove large chunks of the earth's surface in strips. See area strip mining, contour strip mining, surface mining. Compare subsurface mining. |
| **subduction zone** | Area in which oceanic lithosphere is carried downward (subducted) under the island arc or continent at a convergent plate boundary. A trench ordinarily forms at the boundary between the two converging plates. See convergent plate boundary. |
| **subsurface mining** | Extraction of a metal ore or fuel resource such as coal from a deep underground deposit. Compare surface mining. |
| **surface mining** | Removing soil, subsoil, and other strata and then extracting a mineral deposit found fairly close to the earth's surface. See area strip mining, contour strip mining, dredging, mountaintop removal, open-pit mining. Compare subsurface mining. |
| **tectonic plates** | Various-sized areas of the earth's lithosphere that move slowly around with the mantle's flowing asthenosphere. Most earthquakes and volcanoes occur around the boundaries of these plates. See lithosphere, plate tectonics. |
| **transform fault** | Area where the earth's lithospheric plates move in opposite but parallel directions along a fracture (fault) in the lithosphere. Compare convergent plate boundary, divergent plate boundary. |
| **tsunami** | Series of large waves generated when part of the ocean floor suddenly rises or drops, usually because of an earthquake. |
| **undiscovered resources** | Potential supplies of a particular mineral resource, believed to exist because of geologic knowledge and theory, although specific locations, quality, and amounts are unknown. Compare identified resources, reserves. |
| **volcano** | Vent or fissure in the earth's surface through which magma, liquid lava, and gases are released into the environment. |
| **weathering** | Physical and chemical processes in which solid rock exposed at earth's surface is changed to separate solid particles and dissolved material, which can then be moved to another place as sediment. See erosion. |

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