



## Earth Science – Terms and Definitions G1

### The Earth - Earth Sciences -The Scientific Method

direct observation	Information <u>received by</u> one or more of the senses.
instrument	A tool used <u>to extend</u> our senses when making observations.
indirect observation	An observation that <u>requires</u> the use of an instrument.
data	A collection of observations.
classifying	<u>Grouping</u> similar objects or events.
physical <b>property</b>	A <b>feature</b> of a substance in itself.
chemical property	A feature of the way one substance <u>reacts</u> with another substance.
<b>inference</b>	An <u>interpretation</u> of observations.
hypothesis	Possible answer to a problem, <u>based on</u> observations.
theory	Explanation based on strong evidence that several generally accepted hypotheses are correct. / An explanation for observed phenomena that has a high possibility of being true. (PI)
lithosphere	The rigid outer shell of the earth, 70 to 125 or more kilometers thick.
hydrosphere	The entire liquid or water part of the earth.
atmosphere	Envelope of gasses <u>surrounding</u> the Earth, <u>held by</u> gravity. The blanket of air, dust, water droplets, ice particles, etc. that completely <u>covers</u> the earth's lithosphere and hydrosphere.
biosphere	The region where all life <u>is found</u> .
<b>crust</b>	The outer layer of rock, <u>forming</u> a thin skin over the earth's lithosphere.
<b>mantle</b>	A thick shell of rock that <u>separates</u> the earth's crust above from the core below.
geology	The science <u>concerned with</u> the earth's lithosphere.
petrology	The part of geology that <u>specializes in</u> rocks.
hydrology	The science concerned with the earth's entire hydrosphere.
meteorology	The science concerned with the earth's atmosphere.
oceanography	The science concerned with the oceans.
astronomy	The science concerned with stars and planets.

## Measuring

<b>Circumference</b>	The distance around a circle or ball.
<b>Density</b>	The mass of 1 cm <sup>3</sup> of a material.
Derived unit	A unit of measure obtained from two or more base units.
<b>Diameter</b>	A straight line that crosses a circle through the center.
<b>Formula</b>	A group of symbols that make a mathematical statement. (vzoreček) A representation of a substance using symbols for its constitutional elements.
<b>Mass</b> (hmotnost)	The amount of material in something (the same everywhere).
Radius - pl. radii	The distance from the center to the edge of a circle.
SI	Initials for International System of Units.
Volume	The amount of space that an object takes up or can be filled with.
Weight	The pull of gravity on nearby objects.

## Numbers and Fractions

<b>Numbers:</b>	ordinal (1,2,3)      cardinal (1.,2.,3.,)      even (2,4,6..)      odd (1, 3, 5..)
	<b>threefold</b> - trojnásobný; <b>double, triple, quadruple</b> = dvojitý, trojitý, čtvorný
<b>Numerals:</b>	Arabic (1,2,3)      Roman (II, VII)
<b>Fractions:</b>	a half (1/2), a third (1/3) , a fourth/a quarter (1/4), one fifth (1/5), one tenth, also 5/7 five divided by seven; <b>decimal point</b> (= DESETINNÁ ČÁRKA!)
<b>Symbols:</b>	percent, infinity, (not)equal to, greater than, less than
<b>Operations:</b>	<b>addition</b> (+ plus) – result/answer; <b>subtraction</b> (- minus) - remainder (zbytek) multiplication ( <b>x multiplied by, times</b> ); division (: <b>divided by</b> ) power = mocnina; 4 <sup>2</sup> = four squared, 4 <sup>3</sup> = four cubed 2 <sup>3</sup> = 8 two <b>raised</b> to the power of three equals eight root (square/cube/fourth) = odmocnina (druhá, třetí, čtvrtá)

## Geometry *Draw the lines, angles and shapes:*

<b>Lines:</b>	straight      parallel      curved      spiral      perpendicular
<b>Angles:</b>	right      obtuse (tupý)      acute (ostrý)
<b>Shapes:</b>	square      rectangle (obdélník) rhombus (kosočtverec)      parallelogram (rovnoběžník) diagonal (uhlopříčka)      triangle – base (základna) circle – circumference(obvod)      arc (oblouk) diameter (průměr)      radius (poloměr)

**Three-dimensional shapes:** cube    sphere    cone    pyramid    cylinder

Form adjectives by -ic/ical or -al:

**Remember the expressions with the stress on the second syllable:**

obtuse, acute, diagonal, triangle, rectangle, diameter, circumference, subtract

**Check the correct pronunciation:**

Arabic, Roman, equal, quotient, radius, sphere, cylinder, the thousandth, curved, angle, subtract.

**Wide – width – widen, deep –depth – deepen, high – height [ai], to weigh – weight [ei], strong – strength(en), long – length(en)**

## Mapping the Earth's Surface

compass	An instrument for locating magnetic north.
contour interval	Difference between contour lines.
<b>contour line</b>	Line indicating the same elevation.
<b>elevation / altitude</b>	Height above sea level. (400 m a.s.l.)
equator	Line that circles the earth at 0° latitude.
globe	A physical model of the earth.
graphic scale of distances	Line divided into units of distance.
<b>hachures</b>	Short lines that indicate direction of slope.
<b>latitude</b>	Distance north or south of the equator.
<b>longitude</b>	Distance east or west of the prime meridian.
magnetic declination	Distance from true to magnetic north.
magnetic north	Direction toward the North Magnetic Pole.
map projection	An attempt to represent the earth's curved surface on a flat surface.
map	A flat representation of the earth's surface.
<b>meridian</b>	A north-south line that crosses the equator.
North Geographic Pole	Point where all meridians meet.
North Magnetic Pole	The North Pole indicated by a compass.
<b>parallel</b>	East-west line parallel to the equator.
prime meridian	The imaginary north-south line that passes through Greenwich, England.
<b>scale</b>	Ratio of map distances and actual distances.
topographic map	A map that shows land features.
topography	Elevations and shapes of land features.
true north	Direction toward the North Geographic Pole.

### Sources:

Robert E. Fariel, Robert W. Hinds, David B. Berery: **Earth Science**, Addison-Wesley (AW)  
Plummer, Ch. - McGeary, D. - Carlson, D.: **Physical Geology, Earth Revealed**,  
The McGraw-Hill Companies 2001 (PI)  
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**Lingea Lexicon** 5, 2010 (L), **Longman and Webster dictionaries**

## Earth Materials

### Minerals

matter	Anything that takes up space and has mass.
atom	The smallest complete part of an element with all the properties of that element.
element	A substance that contains only one kind of atom, designated by its atomic number
<b>compound</b>	A substance made up of two or more elements joined together in fixed proportions.
<b>impurities</b>	Atoms of elements other than the key elements of a mineral.
mineral	A compound that is natural, inorganic, a crystalline solid, and made up of key elements.
crystalline solid	A solid substance whose atoms are locked together into fixed patterns. A substance in which the atoms are arranged in a regular, repeating, orderly pattern. (PI)
<b>inorganic</b>	Not organic; formed, for the most part, without the help of plants and animals.
crystal	The shape produced when mineral grains have freedom to form in any direction.
silicate minerals	Minerals containing silicon and oxygen.
heft	A rough-estimate weight test for minerals.
specific gravity	The ratio of the mass of a substance to the mass of an equal volume of water, determined at a specified temperature.
cleavage	The ability of a mineral to break into smooth, parallel surfaces.
luster	The way that a mineral reflects the light.
<b>streak</b>	The color of the powder of a mineral against a white background.
fracture	The manner in which a mineral breaks (that does not have cleavage).

### Rocks

rock	A mixture of minerals that is beneath all soil and water on the earth's surface. [Naturally formed, consolidated material composed of grains of one or more minerals.] (There are a few exceptions to this definition.) (PI)
<b>igneous</b> rock	Rock that is formed from solidification of magma (hot melted materials).
lava	What magma is called after it reaches the surface of the earth.
magma	Liquid rock melt that is found in some places beneath the earth's surface.
sedimentary rock	Rock that is formed from sediments.
<b>bed</b>	A layer of sedimentary rock that is marked off above and below by surfaces that can be seen and is made up of material that is the same in all its parts.
<b>bedding-plane</b>	A surface that is parallel to the original surface on which the sediment was deposited.
metamorphic rock	Rock that is formed deep within the earth's crust when minerals and rocks are changed by very great heat and pressure which changes the crystal structure.
mineral composition	A list of the minerals that make up a rock.
<b>texture</b>	The pattern made by the size, shape, and arrangement of the particles that are in rock.
rock cycle	The process by which rock is changed from one class to another.

## Using Earth Materials

<b>ore</b>	Any mineral or rock from which a needed substance can be removed cheaply enough and easily enough. (ruda)
<b>mine</b>	The place that ore comes from.
hanging wall	The upper wall of an inclined fault. (nadložní kra zlomu, v hornictví strop)
footwall	The lower wall of an inclined fault. (podložní kra zlomu, v hornictví počva)
adit	A nearly horizontal passage from the surface into a mine. (štola)
shaft	A vertical passage into a mine. (šachta, jáma)
<b>quarry</b>	A place where stone is dug out of the ground. (lom)
<b>fossil fuels</b>	Fuels formed from the remains of plants and animals that lived and died long ago.
<b>petroleum</b>	A liquid fossil fuel.
<b>natural gas</b>	A fossil fuel that is a gas.
<b>trap</b>	A kind of blockage formed by nonporous rock that traps petroleum and natural gas.
<b>Reservoir</b>	Beds in which oil accumulates.
petrochemicals	Chemical products made from petroleum.
<b>coal</b>	A solid fossil fuel.
<b>peat</b>	A type of soil consisting of decaying plants that can also be used as fuel. A brown, lightweight, unconsolidated or semi-consolidated deposit of plant remains. (PI)
<b>deposit</b>	A natural accumulation (as of iron ore, coal, or gas). (ložisko)
hydrothermal deposit	A mineral deposit produced by liquids coming from magma that contain a large proportion of hot water.
placer	An alluvial or glacial deposit containing particles of valuable mineral and especially of gold. (Webster) = rýžoviště/rozsypové ložisko (PH) A heap produced during gold panning. (Longman)
<b>vein/lode</b>	A thin mass of rock or a mineral, especially a thin ore body. (žíla)
<b>Borehole</b>	A hole drilled into the Earth for oil, gas, water, etc. or to gain information about the rocks below the surface.
<b>Drill / well-logging</b>	The use of physical measurements from instruments lowered down boreholes to obtain information about the rocks below the surface (dokumentace vrtu).
<b>Permeability</b>	A measure of the ease with which a fluid can pass through a rock.
hydroelectric energy	Electricity produced by generators powered by moving water.
geothermal energy	Energy powered by heat from deep within the earth's crust.
atomic energy	Energy that is derived from the atoms of certain earth materials.
<b>fission</b>	Atomic energy that is produced when certain large, unstable atoms are made to split apart to form atoms of a different element.
<b>fusion</b>	Atomic energy that is produced when atoms of an element are joined together to form atoms of a different element.

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