

In this document, you will find the key words and their associated definitions for Chemistry B.

| Unit 2 | |
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| Lesson 2 | **bond energy** – the energy that is required to break chemical bonds  **chemical bond** – the force that holds atoms, molecules, or ions together to form chemical compounds  **endothermic reaction** – a chemical reaction that absorbs energy from the surrounding environment  **enthalpy** – the sum of a system’s internal energy and the product of its pressure and volume  **exothermic reaction** – a chemical reaction that releases energy into the environment |
| Lesson 3 | **surroundings** – everything outside of the system being studied  **system** – the reactants and products in a chemical reaction |
| Lesson 4 | **bond energy** – the energy that is required to break chemical bonds  **chemical bond** – the force that holds atoms, molecules, or ions together to form chemical compounds |
| Lesson 5 | **chemical bond –** a force that holds atoms together  **chemical reaction system –** a chemical reaction and its reactants and products  **electronegativity –** a measure of the ability of an atom to attract electrons to itself |
| Lesson 6 | **chemical reaction system** – the reactants and products in a particular reaction that is being studied  **conduction** – the transfer of energy by direct contact  **convection –** the transfer of energy by currents of moving fluids  **endothermic reaction** – a chemical reaction in which there is a net input of energy from the surroundings into the system  **exothermic reaction** – a chemical reaction in which there is a net output of energy from the system into the surroundings  **radiation –** the transfer of energy as electromagnetic waves  **surroundings –** everything outside the system being studied |
| Lesson 7 | **activation energy –** the energy that must be added to a system to break the bonds of the reactants  **chemical reaction system –** a chemical reaction that is being studied  **endothermic reaction –** a chemical reaction in which there is a net input of energy from the surroundings into the system  **energy –** the potential to do work  **exothermic reaction –** a chemical reaction in which there is a net output of energy released from the system into the surroundings  **kinetic energy (KE) –** energy of motion  **potential energy (PE) –** energy due to position or composition  **surroundings –** everything outside the system being studied  **thermochemistry –** the study of energy changes in chemical and physical changes |
| Lesson 8 | **activation energy –** the initial input of energy to break the chemical bonds  **chemical bonds –** the forces that hold atoms together  **chemical reaction system –** the particles that take place in the reaction  **covalent bond –** the bond between atoms resulting from electron sharing  **electronegativity –** a measure of the ability of an atom to attract electrons  **endothermic reaction –** a chemical reaction in which there is a net input of energy from the surroundings into the system  **exothermic reaction –** a chemical reaction in which there is a net output of energy from the system into the surroundings  **ionic bond –** the bond between oppositely charged ions in a compound  **potential energy –** energy due to position or composition  **products –** the end substances in a reaction  **reactants –** the starting substances in a reaction  **surroundings –** everything outside the system being studied |
| Unit 3 | |
| Lesson 2 | **bond energy** – energy that must be input to break a bond  **chemical bond** – an electrical attraction that holds atoms together within a molecule or formula unit  **chemical reaction system** – the atoms that take part in a chemical reaction  **endothermic reaction** – a chemical reaction that has a net absorption of energy  **exothermic reaction** – a chemical reaction that has a net release of energy  **products** – the end materials in a chemical reaction  **reactants** – the starting materials in a chemical reaction |
| Lesson 3 | **chemical reaction system** – the atoms that take part in a chemical reaction  **surroundings –** everything outside the system being studied |
| Lesson 4 | **bond energy** – the energy that is required to break bonds  **chemical potential energy** – the energy that is stored in bonds  **endothermic chemical reaction** – a reaction that takes energy from the surroundings  **exothermic chemical reaction** – a reaction that gives off energy to the surroundings  **surroundings** – everything outside of a chemical reaction system |
| Lesson 5 | **activated state** – the highest energy of the chemicals as they proceed through a reaction  **bond energy** – the energy that is required to break bonds  **catalyst** – a substance that increases the rate of a reaction by lowering the activated state energy  **chemical potential energy** – the energy that is stored in bonds  **endothermic** – a reaction or process that takes energy from the surroundings  **exothermic** – a reaction or process that gives off energy to the surroundings  **surroundings** – everything outside of a chemical reaction system |
| Lesson 6 | **activation energy** – initial input of energy that is used to break bonds  **bond energy** – the energy that is required to break bonds  **electrode** – a conductor through which an electric current enters or leaves a substance  **electrolysis** – a process in which electrical energy is used to bring about a chemical reaction  **endothermic** – a reaction or process that takes energy from the surroundings  **exothermic** – a reaction or process that gives off energy to the surroundings |
| Lesson 7 | **activation energy** – initial energy that must be added to begin a reaction  **chemical bond** – the force that holds atoms, molecules, or ions together to form chemical compounds  **chemical system** – the atoms that take part in a chemical reaction  **heat** – the flow of energy between two objects of different temperatures |
| Lesson 8 | **activation energy** – energy that needs to be input to break the bonds of the reactants  **bond energy** – the energy required to break a chemical bond and a measure of how strong the bond is  **chemical potential energy** – energy that is stored in bonds  **kinetic energy –** the energy of motion |
| Lesson 9 | **chemical reaction system** – all the atoms that take part in a chemical reaction  **law of conservation of energy** – energy can neither be created nor destroyed, only changed in form  **surroundings** – everything outside the chemical reaction system |
| Lesson 10 | **energy of collision** – the force with which molecules strike each other  **energy transfer** – when energy is passed from one body to another as movement or heat  **kinetic energy** – the energy of motion  **temperature** – a measure of the energy and motion of molecules |
| Lesson 11 | **bond energy** – the energy that is required to break bonds  **chemical potential energy** – the energy that is stored in bonds |
| Unit 4 | |
| Lesson 1 | **concentration** – the amount of a substance that is dissolved in a given amount of another substance  **chemical reaction** – a process in which the original substances (reactants) are converted into one or more different substances (products)  **reactants** – the substances present at the beginning of a chemical reaction, shown to the left of the arrow in a chemical equation  **temperature** – a measure of the average kinetic energy of particles in matter |
| Lesson 2 | **chemical reaction** – a process in which the original substances (reactants) are converted into one or more different substances (products)  **concentration** – the amount of a substance that is dissolved in a given amount of another substance  **kinetic energy** – energy of an object because of its motion  **products** – the substances present at the end of a chemical reaction, shown to the right of the arrow in a chemical equation  **reactants** – the substances present at the beginning of a chemical reaction, shown to the left of the arrow in a chemical equation  **reaction rate** – the speed of change of a chemical reaction over time  **temperature** – a measure of the average kinetic energy of particles in matter |
| Lesson 3 | **concentration –** the amount of a substance that is dissolved in a given amount of another substance  **direct observation –** observations made by the someone first-hand  **indirect observation –** observations made via the reports of others or some other source of secondhand information  **kinetic energy –** energy of an object because of its motion  **reactants –** the substances present at the beginning of a chemical reaction, shown to the left of the arrow in a chemical equation  **reaction rate –** the speed of change of a chemical reaction over time  **temperature –** a measure of the average kinetic energy of particles in matter |
| Unit 5 | |
| Lesson 1 | **None** |
| Lesson 2 | **closed system –** a structure that does not allow matter to enter or leave  **equilibrium –** a state of balance of two opposing processes happening at the same rate  **macroscopic properties –** characteristics of a substance that can be viewed with the naked eye |
| Lesson 3 | **equilibrium** – a state in which the forward and reverse reactions of a chemical equation occur at the same rate  **Le Chatelier’s principle –** a principle of chemistry that states that when a system at equilibrium changes in any way, the system shifts in a direction that opposes the change in order to achieve a new state of equilibrium |
| Lesson 4 | **dynamic equilibrium** – the condition in which the rate of the forward reaction equals the rate of the reverse reaction  **endothermic** – a reaction that uses energy such that the energy appears on the reactant side of a chemical equation  **equilibrium –** a state of balance  **exothermic –** a reaction that produces energy such that the energy appears on the product side of a chemical equation  **Le Chatelier’s principle** – a principle of chemistry that states that changes in temperature, pressure, or concentration in any system that includes a chemical reaction will lead to opposing changes within the reaction that will bring the system back into equilibrium |
| Lesson 5 | **rate of the forward reaction –** how quickly the reactants are used up to form the products in the forward reaction  **rate of the reverse reaction** – how quickly the products are used up to form the reactants in the reverse reaction |
| Lesson 6 | **resource extraction –** the removal of materials from the natural environment |
| Lesson 7 | **ductile –** able to be drawn out into a thin wire  **malleable –** able to be hammered or pressed into shapes  **polymer –** a substance that has a molecular structure made up of many repeating units bonded together |
| Lesson 8 | **constraints –** limits or restrictions of a process  **criteria –** factors that describe the requirements of a process  **environmental impact –** the consequences of human activities for animals, birds, insects, plants, and other parts of the ecosystem  **Le Chatelier’s principle –** a principle of chemistry which states that, when one of the variables that describes a system at equilibrium is changed, a shift in the equilibrium is produced that counteracts the effect of this change |
| Lesson 9 | **catalyst –** a substance that causes an increase in the rate of a chemical reaction but is not consumed in the reaction |
| Lesson 10 | **organic compounds –** class of compounds containing carbon covalently bonded to certain other atoms, especially hydrogen, oxygen, and nitrogen |
| Lesson 11 | **ore –** rock that is extracted in mining and contains a valued mineral  **smelting –** separation of metal from its ore and other impurities using chemicals and heat |
| Unit 6 | |
| Lesson 1 | None |
| Lesson 2 | **chemical equation –** written representation of a chemical reaction using symbols and numbers  **chemical reaction –** process that converts the ionic or molecular structure of the initial elements to different substances  **closed system –** a physical environment where no reactants or products can escape  **law of conservation of mass –** matter cannot be created or destroyed in a chemical reaction  **products –** substances after a chemical reaction occurs  **reactants –** substances before a chemical reaction occurs |
| Lesson 3 | **chemical equation** – written representation of a chemical reaction using symbols and numbers  **chemical reaction –** process in which atoms in the reactants rearrange to form a new substance or substances  **law of conservation of mass** – matter cannot be created or destroyed in a chemical reaction  **product –** final substance in a chemical reaction  **ratio –** quantitative relationship between two or more values indicating their relative sizes by showing how many times one value combines or is combined by another  **reactant –** an initial substance in a chemical reaction |
| Lesson 4 | **atomic mass –** amount of matter contained in one atom of an element  **atomic mass unit –** a constant used to express atomic mass, equivalent to one-twelfth the mass of an atom of the carbon-12 isotope  **chemical equation –** written representation of a chemical reaction using symbols and numbers  **chemical reaction –** process in which atoms in the reactants rearrange to form a new substance or substances  **isotope –** an atom of an element that has a different number of neutrons and, therefore, a different atomic mass  **law of conservation of mass –** matter cannot be created or destroyed in a chemical reaction  **periodic table –** arrangement of all chemical elements, organized by atomic number, that provides information on trends in their properties  **product –** a final substance in a chemical reaction  **reactant –** an initial substance in a chemical reaction |
| Lesson 5 | **atomic mass** – amount of matter contained in one atom of an element  **atomic mass unit (amu or u) –** constant used to express atomic mass, equivalent to one-twelfth the mass of an atom of the carbon-12 isotope  **Avogadro’s number** – a value that makes the mass of one mole of a chemical compound in grams numerically equal (for all practical purposes) to the average mass of one molecule of the compound 6.022×1023  **macroscopic –** visible to the naked eye  **molar mass –** mass, in grams, of one mole of a pure substance  **mole (mol) –** the amount of a substance containing 6.022×1023 particles of the substance |
| Lesson 6 | **atom –** basic unit of a chemical element, consisting of a positively-charged nucleus surrounded by one or more negatively-charged electrons  **chemical equation –** written representation of a chemical reaction using symbols and numbers  **chemical reaction –** process in which atoms in the reactants rearrange to form a new substance or substances  **law of conservation of mass –** matter cannot be created or destroyed in a chemical reaction  **mole (mol) –** the amount of a substance containing 6.022 × 1023 particles of the substance  **reactant –** an initial substance in a chemical reaction  **product** – a final substance in a chemical reaction |
| Lesson 7 | **atomic mass unit (u)** – constant used to express atomic mass, equivalent to one-twelfth the mass of an atom of the carbon-12 isotope.  **chemical reaction –** process in which atoms in the reactants rearrange to form a new substance or substances  **molar mass –** the mass in grams of one mole of a pure substance  **law of conservation of mass –** matter cannot be created or destroyed in a chemical reaction  **mole (mol) –** the amount of a substance containing 6.022 × 1023  particles of the substance  **periodic table** – arrangement of all chemical elements, organized by atomic number, providing information on their properties  **product –** a final substance in a chemical reaction  **reactant** – an initial substance in a chemical reaction |
| Lesson 8 | **chemical reaction –** process in which atoms in the reactants rearrange to form a new substance or substances  **law of conservation of mass –** matter cannot be created or destroyed in a chemical reaction  **molar mass –** the mass in grams of one mole of a pure substance  **product –** final substance in a chemical reaction  **reactant –** initial substance in a chemical reaction  **stoichiometry –** quantitative study of the amounts of reactants and products in a chemical reaction |
| Lesson 9 | **Avogadro’s number –** a value used to determine the number of atoms needed to make the average mass of one particle of an element equal to the mass of one mole of the element  **chemical reaction –** process in which atoms in the reactants rearrange to form a new substance or substances  **molar mass –** the mass in grams of 1 mole of a pure substance, equivalent to the atomic mass unit of the element  **mole (mol) –** international unit of amount of a substance, used to express amounts of reactants and products in chemical reactions  **periodic table –** arrangement of all chemical elements, organized by atomic number, that provides information on trends in their properties |
| Unit 7 | |
| Lesson 1 | None |
| Lesson 2 | **alpha particle –** a particle composed of 2 protons and 2 neutrons often involved in nuclear processes  **atomic number –** the number of protons in an atom of an element  **mass-energy equivalency –** the principle that mass is equivalent to concentrated energy  **mass number –** the sum of the protons and neutrons that make up the nucleus of an atom  **transmutation –** the conversion of an atom of one element into an atom of a different element through nuclear changes |
| Lesson 3 | **nuclear chain reaction –** a series of nuclear fission reactions in which the particles produced in one reaction cause the next reaction to occur  **nuclear fission –** a nuclear process in which a large nucleus splits into smaller nuclei  **nuclear fusion –** a nuclear process in which small nuclei join to form a larger nucleus  **radioactive decay –** the process by which an unstable nucleus releases radiation in the form of particles and energy |
| Lesson 4 | **nuclear fusion –** a nuclear process in which small nuclei join to form a larger nucleus  **nucleus** – the small, dense, positively charged center of an atom  **proton –** a positively-charged particle that makes up the positive charge in the nucleus of an atom |
| Lesson 5 | **neutron –** a particle that has no charge and is present in the nucleus of most atoms  **nuclear fission** – a nuclear process in which a large nucleus splits into two smaller nuclei |
| Lesson 6 | **alpha decay –** radioactive decay in which an alpha particle is released  **beta decay –** radioactive decay in which a beta particle is released  **gamma decay –** radioactive decay in which gamma rays are released  **radioactive decay** – the process by which an unstable nucleus releases radiation in the form of particles and/or energy |
| Lesson 7 | **alpha decay –** radioactive decay in which an alpha particle is released  **beta decay –** radioactive decay in which a beta particle is released  **gamma decay –** radioactive decay in which gamma rays are released  **nuclear fission –** a nuclear process in which a large nucleus splits into two or more parts  **radioactive decay –** the process by which an unstable nucleus releases radiation in the form of particles and/or energy |
| Unit 8 | |
| Lesson 1 | None |
| Lesson 2 | **global warming** – a gradual increase in the temperature of the atmosphere near Earth’s surface  **greenhouse gas –** an atmospheric gas that absorbs and reemits infrared radiation that warms the atmosphere near Earth’s surface  **infrared energy** – energy carried by radiation in the infrared part of the electromagnetic spectrum; felt by humans as heat |
| Lesson 3 | **acid rain –** rain, or any other form of precipitation, that is made so acidic by pollutants in the atmosphere that it can harm the environment  **halon –** a gaseous compound with a molecular structure consisting of a saturated hydrocarbon bonded to a halogen  **ozone –** a toxic gas with a molecular structure composed of three oxygen atoms; in the stratosphere, it protects Earth by absorbing harmful ultraviolet radiation from the sun  **particulate –** one of many tiny particles of solid pollutants such as coal dust that become suspended in the air  **pollutant –** a substance or energy introduced into the environment that has undesired effects  **pollution –** the presence or introduction into the environment of a substance or energy that is harmful to the environment or has undesired effects  **stratosphere –** second-lowest layer of Earth’s atmosphere, just above the troposphere in which most of Earth’s weather occurs |
| Lesson 4 | **acid rain** – rain, or any other form of precipitation, that is made so acidic by pollutants in the atmosphere that it can harm the environment  **halon –** a gaseous compound with a molecular structure consisting of a saturated hydrocarbon bonded to a halogen  **ozone –** a toxic gas with a molecular structure composed of three oxygen atoms; in the stratosphere, it protects Earth by absorbing harmful ultraviolet radiation from the sun  **particulate –** one of many tiny particles of solid pollutants such as coal dust that become suspended in the air  **pollutant –** a substance or energy introduced into the environment that has undesired effects  **pollution –** the presence or introduction into the environment of a substance or energy that is harmful to the environment or has undesired effects  **stratosphere –** second-lowest layer of Earth’s atmosphere, just above the troposphere in which most of Earth’s weather occurs |
| Lesson 5 | **concentration –** the ratio of the amount of solute to the amount of solvent or the amount of solution; often measured in moles, mass, or volume  **contaminant –** a polluting substance that makes something impure; it may be physical, chemical, or biological in nature  **Environmental Protection Agency (EPA)** – an agency of the United States federal government whose mission is to protect human and environmental health |
| Lesson 6 | **concentration –** the ratio of the amount of solute to the amount of solvent or the amount of solution; often measured in moles, mass, or volume  **contaminant –** a polluting substance that makes something impure; it may be physical, chemical, or biological in nature  **Environmental Protection Agency (EPA)** – an agency of the United States federal government whose mission is to protect human and environmental health |
| Lesson 7 | **Water pollutant** - a harmful substance that contaminates water  **Water remediation** - a process used to treat polluted water by removing the pollutants or converting them into harmless products |
| Lesson 8 | **fracking –** the injection of water and chemicals at high pressure into underground rock formations to force open existing cracks and extract oil or gas  **Industrial Revolution** – period from about the mid-1700s to mid-1800s marked by the rise of industry and machine manufacturing  **natural resource –** any substance that occurs in nature that is useful to people |