nucleus: (chemistry) the dense center of an atom made up of protons and (except in the case of a hydrogen atom) neutrons

nucleus: the cell organelle that houses the cell's DNA and directs the synthesis of ribosomes and proteins

O

oil: an unsaturated fat that is a liquid at room temperature

Okazaki fragments: the DNA fragments that are synthesized in short stretches on the lagging strand

orbital: an area where an electron is most likely to be found its

organ system: the higher level of organization that consists of functionally related organs

organ: a structure formed of tissues operating together to perform a common function

organelle: a membrane-bound compartment or sac within a cell

organic molecule: any carbon-containing liquid, solid, or gas

organism: an individual living entity

osmolarity: the total amount of substances dissolved in a specific amount of solution

osmosis: the transport of water through a semipermeable membrane from an area of high-water concentration to an area of low-water concentration across a membrane. Water also moves from an area of low solutes to an area of high solutes until equilibrium is met.

oxidation reaction: a chemical reaction that consists of an electron being donated by an atom

oxidative phosphorylation: production of ATP using the process of chemiosmosis in the presence of oxygen

oxidative phosphorylation: the production of ATP by the transfer of electrons down the electron transport chain to create a proton gradient that is used by ATP synthase to add phosphate groups to ADP molecules

P

P: the parental generation in a cross

passive transport: a method of transporting material that does not require energy

pedigree: to chart used to study inheritance patterns of genetic characteristics

peer-reviewed article: a scientific report that is reviewed by a scientist's colleagues before publication

peptide bond: a covalent bond that exists between the amino group of one amino acid and the carboxyl group of a second amino acid

periodic table of elements: an organizational chart of elements, indicating the atomic number and mass number of each element; also provides key information about the properties of elements

peripheral protein: protein at the plasma membrane's surface either on its exterior or interior side

peroxisome: a small, round organelle that contains hydrogen peroxide, oxidizes fatty acids and amino acids and detoxifies many poisons

pH scale: a scale ranging from 0 to 14 that measures the approximate concentration of hydrogen ions of a substance

phagocytosis: a process that takes macromolecules that the cell needs from the extracellular fluid; a variation of endocytosis

phenotype: the observable traits expressed by an organism

phospholipid: a major constituent of the membranes of cells; composed of two fatty acids and a phosphate group attached to the glycerol backbone

phosphorylation: addition of a high-energy phosphate to a molecule, usually a metabolic intermediate, a protein, or ADP

photoautotroph: an organism capable of synthesizing its own food molecules (storing energy), using the energy of light

photon: a distinct quantity or "packet" of light energy

photorespiration: when oxygen is in a higher concentration than carbon dioxide, rubisco will fix oxygen to RuBP

photosynthesis: a multi-step chemical reaction that requires light energy, carbon dioxide, and water and produces sugar and oxygen

photosystem: a group of proteins, chlorophyll, and other pigments that are used in the light-dependent reactions of photosynthesis to absorb light energy and convert it into chemical energy

phylogenetic tree: a diagram showing the evolutionary relationships among biological species based on similarities and differences in genetic or physical traits or both

pigment: a molecule that is capable of absorbing light energy

pinocytosis: a process that takes solutes that the cell needs from the extracellular fluid; a variation of endocytosis

plasma membrane: a phospholipid bilayer with embedded (integral) or attached (peripheral) proteins that separates the internal contents of the cell from its surrounding environment

plasmodesma: (plural: plasmodesmata) a channel that passes between the cell walls of adjacent plant cells, connects their cytoplasm and allows materials to be transported from cell to cell

pleiotropy: describes when one gene controls two or more different characteristics

point mutation: occur when a single nucleotide is permanently changed in the DNA sequence

polar covalent bond: a type of covalent bond in which electrons are pulled toward one atom and away from another, resulting in slightly positive and slightly negative charged regions of the molecule

polygenic inheritance: describes when each gene that an individual inherits has a small additive effect on the overall phenotype

polymers: larger molecules that are formed by combining monomers using covalent bonds

polypeptide chain: a long chain of amino acids linked by peptide bonds

polyploid: an individual with an incorrect number of chromosome sets

polysaccharide: a long chain of monosaccharides; may be branched or unbranched

population genetics: the study of how selective forces change the allele frequencies in a population over time

population: all individuals within a species living within a specific area

potential energy: the type of energy that refers to the potential to do work

predictions: statements that describe what should happen if the hypothesis is supported

primary structure: a linear sequence of amino acids in a protein

products: the substances that are formed at the end of a chemical reaction (usually on the right side of a chemical equation

prokaryote: a unicellular organism that lacks a nucleus or any other membrane-bound organelle

prometaphase: the stage of mitosis during which mitotic spindle fibers attach to kinetochores

promoter: a sequence on DNA to which RNA polymerase and associated factors bind and initiate transcription

prophase: the stage of mitosis during which chromosomes condense and the mitotic spindle begins to form

protein: a biological macromolecule composed of one or more chains of amino acids

proton: a positively charged particle that resides in the nucleus of an atom; has a mass of 1 and a charge of +1

pseudoscience: claims or beliefs that are portrayed as scientific fact but cannot be evaluated using the scientific method

Punnett square: a visual representation of a cross between two individuals in which the gametes of each individual are denoted along the top and side of a grid, respectively, and the possible zygotic genotypes are recombined at each box in the grid