

MATTER, CHEMICAL BONDS, MACROMOLECULES AND ENZYMES TEST KEY

MATTER:

Matter – anything that takes up space and has mass.

Atom – building blocks of matter.

Compound – two or more elements chemically combined.

Molecules – smallest part of a compound.

Isotope – element with a different number of neutrons than protons and electrons.

Atomic Number – number of protons in an atom.

Mass Number – protons plus neutrons in an atom.

1. Subatomic Particles:

Electron – negative, found in the electron cloud outside the nucleus, founded by JJ Thompson and is the lightest particle.

Proton – positive, found inside the nucleus, founded by Ernest Rutherford and is the second heaviest particle.

Neutron – no charge, found inside the nucleus, founded by James Chadwick and is the heaviest particle.

2. **The periodic table** is arranged by increasing atomic number. There are 7 periods (rows) and 18 groups (columns). Metals are on the right hand side and Nonmetals on the left hand side.

CHEMICAL BONDS:

Valence Electrons – electrons available for bonding.

Covalent Bonds – the sharing of electrons.

Ion – a charged particle.

Suspension – the particles tend to hang when mixed together.

Mixture – two or more substances physically combined.

Polarity – the tendency of molecules to be attracted to opposite poles.

Ionic Bonds – occurs when electrons are transferred from one atom to another.

Colloid – appears to be cloudy when mixed together.

Solution – a substance that has been completely dissolved.

1. In a heterogeneous mixture you can see the parts, such as trail mix. In a homogeneous mixture you cannot see the parts, such as milk.

ACIDS / BASES:

Neutral Solutions – have an equal concentration of hydrogen and hydroxide ions.

PH Scale – shows how acidic or basic a substance is.

PH – the concentration of hydrogen ions.

POH – the concentration of hydroxide ions.

1. Acids – sour to taste, react with metals, have a ph between 0 and 7, the stronger the acid the lower the number.

Bases – bitter to taste, slippery to touch, have a ph between 7 and 14, the stronger the base the higher the number.

2. YOU DO NOT HAVE TO KNOW THIS FOR THE TEST

MACROMOLECULES:

Monomer – smaller molecules in a compound.

Polymer – is a chain of monomers put together.

Starch – stored glucose in the body.

Saturated Fat – has the maximum amount of hydrogen ions.

Unsaturated Fat – does not have the maximum amount of hydrogen ions.

Nucleic Acids – store and transmit genetic information.

Amino Acids – the building blocks of proteins.

Carbohydrates – provide most of the energy to the human body.

Glucose – provides immediate energy.

Lipid – stores energy in the body.

Protein – strengthens bones and builds muscle.

1. DO NOT NEED TO KNOW FOR THE TEST.

2. The human body needs 20 amino acids to function at its best. Our body naturally makes 12 so therefore we must get the other 8 from food and vitamins.

ENZYMES:

Chemical Reactions – the process in which a substance is changed chemically into an entirely new substance.

Endothermic Reaction – energy is absorbed so therefore it is cold.

Activation Energy – the energy needed to start a chemical reaction.

Catalyst – speed up chemical reactions

Active Site – the spot in the body where the substrate and enzyme bind.

Exothermic Reaction – energy is released, so it is hot.

Substrate – the reactants that enzymes bind to.

ENZYMES:

1. Work best at body temperature
2. Regulate Chemical Pathways
3. Turn Reactions off and on