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Science One Liners – Part 3

Chemistry and Biology

1. Nature of Matter
2. Metals and Non Metals
3. Water
4. The Living World
5. Study of Cells

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NATURE OF MATTER

- Any thing that has mass and occupy space is called Matter
- Einstein's mass energy relation is given by the equation $E = mc^2$
- The matter is classified into different types based on their physical properties
- The substance which consists of similar particles are called Homogenous mixtures
- The substances which can be divided into two or more simple substances chemically are called Heterogeneous
- The combination of two or more mixtures with indefinite proportion are called Mixtures
- The pure substances made by the chemical combination of two or more substances are called Compounds
- The minute particle of any element that takes part in the chemical reaction is called a Atom
- The cluster of atoms is called Molecule
- The molecules of helium are made up of Single atom

- The elements made up of single atom are called Monoatomic
- The molecules of oxygen consists of 2 atoms
- The elements made up of two atoms are called Diatomic
- A molecule of ozone consists of three atoms of oxygen
- The study of nature and properties of matter is called Macro study
- The study of particles in matter is called Micro study
- The speed of the particles in solids increases on heating
- A molecule of hydrogen consists of two hydrogen atoms
- The molecule of water consists of two hydrogen atoms and one oxygen atom
- A atom or cluster of atom either by gaining or losing electrons become electrically charged particle is called Ion
- The negatively charged ions are called Anions
- The positively charged ions are called Cations
- The atomic mass of oxygen is 16
- The ratio of the mass of one molecule to that of one-twelfth of the mass of carbon 12 atom
- The mass of water molecule is 18
- 1 Dalton is equal to 1.66×10^{-27} kg
- The ratio of the mass of one atom of the element to the mass of one atom of hydrogen is called Atomic mass
- The method of representing atoms by symbols was suggested by Berzellius
- The Avogadro number is denoted by the symbol N
- The value of Avogadro number is 6.023×10^{23}
- The quantity of a substance that contain Avogadro number of a particular species is called Mole
- The chemical symbol of Carbon is C
- The chemical symbol of Hydrogen is H
- The chemical symbol of Oxygen is O
- The chemical symbol of Sulphur is S
- The chemical symbol of calcium is Ca
- The chemical symbol of Barium is Ba
- The chemical symbol of Potassium is K

- The chemical symbol of Sodium is Na
- The chemical symbol of Gold is Au
- The chemical symbol of Iron is Fe
- The combining capacity of atoms is known as Valency
- Valency of different elements is decided based on the number of hydrogen atoms combine with one atom of that element
- The valency of HCl is 1
- The property of the same element that exhibit the different valence number in a compound and at another is called Variable Valency
- An example for monoatomic element is Sodium
- A group of elements which act as a single unit retaining its identity in chemical reaction is called Radical
- The molecular formula of Sulphuric acid is H₂SO₄
- The molecular mass of Hydrogen chloride is 36.5
- The percentage of oxygen present in Potassium Chlorate is 39.18
- The percentage of element magnesium in Magnesium Chloride is 25.26
- The molecular mass of Magnesium Chloride is 95
- The symbolic representation of chemical change is called Equation
- In equation the reactants are written on the left hand side
- In equation the products are written on the right hand side
- In an equation the gas liberated during chemical change is shown by upward arrow mark
- In an equation the solid formed during chemical change is shown by downward arrow mark
- The number of protons in an atom indicates its Atomic number
- The Atomic number is denoted by the letter Z
- The positively charged particles are called Protons
- The electrons are the negatively charged particles
- The Neutrons are the Neutral particles
- The total number of neutrons and protons in an atom is known as Atomic mass number
- Atomic mass number is denoted by the letter A
- The equation used to find the Atomic mass number is $A = N + Z$

- The formula used to find the number of neutrons in an atom is $N = A - Z$
- The atomic number of Oxygen is 8
- The imaginary path of electrons around the nucleus is called Orbit
- The central part of the atom bounded by protons and neutrons is called Nucleus
- Protons and Neutrons are commonly known as Nucleons
- The rearrangement of elements that occur between atoms is a Chemical reaction
- The electrons which take part in chemical reaction are called Valence Electrons
- The maximum number of elements that can be accommodated in any shell is $2n^2$
- The maximum number of electrons in the shell K are 2
- The maximum number of electrons in the shell L are 8
- The maximum number of electrons in the shell M are 18
- The maximum number of electrons in the shell N are 32
- The sub shells in the shell K are s
- The sub shells in the shell L are s, p
- The sub shells in the shell M are s, p, d
- The sub shells in the shell n are s, p, d, f
- Arrangement of electrons in different sub shells of an atom of the element is called Electronic Configuration
- The electrons in the sub shells are filled in the increasing order of energy level
- The electronic configuration of carbon is $1s^2, 2s^2, 2p^2$
- The electron shells around a nucleus were discovered by Neils Bohr
- The particle Electron was discovered by J.J.Thomson
- The particle Proton was discovered by Rutherford
- The particle Neutron was discovered by James Chadwick
- The electronic configuration of oxygen is $1s^2, 2s^2, 2p^4$
- On the basis of electronic configuration the elements are classified into four blocks
- The atom with electronic configuration ns^2, np^6 attain maximum stability
- The elements which do not participate easily in the chemical reaction are called Zero group elements
- The state of matter that has definite shape and definite volume is called Solid
- The kinetic energy of molecules is least in solids
- The state of matter that has no fixed shape but has fixed volume is called Liquid

- The distance between the molecules in solid is Least
- The distance between the molecules in liquids is greater than the solids
- The state of matter that has neither definite shape nor definite volume is called Gaseous
- The molecules of the gas has the highest freedom to move
- The distance between the molecules in gas is greater than the liquids
- On heating liquids the motion of the particles increases
- Pure substances are classified into 2 types
- Any pure substance that is made of only one kind of atoms is called an element
- An example for Element is Hydrogen
- A pure substance formed by the chemical combination of two or more substances in definite proportion by weight is called a Chemical compound
- An example for Chemical compound is Water
- An example for anion are Chloride ions (Cl⁻)
- An example for cation are Hydrogen ions (H⁺)
- The atomic mass of sodium is 23
- The atomic mass of Chlorine is 35
- The atomic mass of Nitrogen is 14
- One a.m.u is defined as the mass of 1/12th the mass of carbon 12 atom
- The molecular mass of carbon monoxide is 28
- The molecular mass of carbon dioxide is 44
- The molecular mass of Hydrochloric acid is 36.5
- The molecular mass of Calcium Carbonate is 100
- The number of molecules present in mole of a substance is constant, the constant is called Avogadro number
- The chemical symbol of Platinum is Pt
- The chemical symbol of tungsten is W
- The valency in Nitric oxide (NO) is 2
- The short form of a molecule of an element or compound is called Molecular Formula
- The molecular formula of Nitric Acid is HNO₃
- The molecular formula of Washing soda is Na₂CO₃
- The molecular formula of Caustic soda is NaOH
- The molecular formula of Ammonia is NH₃

- The molecular formula of Calcium carbonate is CaCO₃
- The ratio of Hydrogen, Sulphur and Oxygen in Sulphuric acid is 1:16:32
- The molecular formula of Potassium hydroxide is KOH
- The molecular mass of potassium hydroxide is 56
- The molecular mass of Nitric acid is 63
- The molecular formula of Potassium chlorate is KClO₃
- The molecular mass of Potassium chlorate is 122.5
- The mass of Nitrogen in HNO₃ is 14
- The mass of Magnesium in MgCl₂ is 24
- The percentage of chlorine in MgCl₂ is 74.736
- $\text{NH}_4\text{OH} + \text{HCl} \text{ ----- } \text{NH}_4\text{Cl} + \text{H}_2\text{O}$
- The Electronic configuration helps to the nature of chemical bond
- The Electronic configuration helps o know the magnetic property of element
- The Zero group elements are also called as Noble gas
- The atomic number of Helium is 2
- The atomic number of Neon is 10
- The atomic number of Argon is 18
- The atomic number of Krypton is 36
- The electronic configuration of Helium is 1s²
- The latin name of Iron is ferrum
- The Latin name of gold is Aurum
- The Latin name of Potassium is Kalium
- The Latin name of Lead is Plumbum
- The Latin name of Sodium is Natrium
- The number of valence electrons in the atom of chlorine are 7
- 2 moles of water are present in 36 gm of water
- The net charge on a normal atom is Zero
- The arrangement having eight electrons in the outermost shell of an atom are called Octet arrangement
- An example for mixture is Air
- The substances that react with both acids and bases are Metalloids
- The law of traids was given by Dobereiner

- When the elements were arranged in the ascending order of their atomic mass the eighth element resembled the first element in its properties is called Newton's law of octaves
- The atomic mass of Li is 6.01
- The atomic mass of K is 39.098
- The atomic mass of Na is 22.99
- The properties of elements are the periodic functions of their atomic masses is Mendeleev's periodic law
- The 7 horizontal rows in the periodic table are called Periods
- The 18 vertical rows in the periodic table are called Groups
- The 1 to 2 group elements are s block elements
- The 3 to 10 group elements are d block elements
- The 13 to 18 group elements are p block elements
- The elements with atomic number 21 – 30 are 3d block elements
- The elements with atomic number 39 – 48 are 4d block elements
- The elements with atomic number 57, 72 – 80 are 5d block elements
- The elements with atomic number 58 – 71 are 4f block elements
- The elements with atomic number 90 – 103 are 5f block elements
- The second period elements are called Representative elements
- The 14 elements after Lanthanum are called Lanthanides
- The electronic configuration of transitional elements is $(n - 1)d^{(1-10)}ns^2$
- The electronic configuration of inner transition elements is $(n - 2)f^{1-14}ns^2$
- The 14 elements after actinide are called Actinides
- The symbolic representation of a reaction with the help of symbols and formulae of respective reactants and products is Chemical Equation
- The process of equalizing the number of atoms on reactant side and the product side is called Balancing the chemical equation
- A type of chemical reaction in which two or more reactants combine chemically to form a single product is Chemical Combination
- A type of chemical reaction in which an element present in a compound is displaced by another element is Chemical Displacement
- A type of chemical reaction in which a single reactant decomposes to form two or more products is Chemical Decomposition

- A type of chemical reaction in which the reactants will exchange mutually their radicals to form two new compounds is Chemical Double Decomposition
- The chemical bond formed between the ions is called Ionic Compound
- The process in which Ionic compounds dissolve in water and disassociate into their Ions is Ionisation.
- The positively charged Ions are called Cations
- The negatively charged Ions are called Anions
- The type of chemical bond formed by sharing one or more electron pairs is called Covalent bond
- The bonds that usually does not dissolve in water is Covalent bond
- The lattice of positive ions of metal submerged in the electron flow is Electron gas model
- The force of attraction which exist between Hydrogen Positive end and negative end of polar molecules is Hydrogen Bond.
- The latin name of the element Potassium is Kalium
- The latin name of element Sodium is Natrium
- The latin name of element lead is Plumbum
- The latin name of Mercury is Hydrargyrum
- The oxide formed by the action of oxygen on non metals is Acidic oxide
- The oxide formed by the action of oxygen on metals is Basic oxide
- A compound having one or more replaceable hydrogen atoms is called Acid
- The compounds which react with acids and produce salt and water are called Bases
- The process of obtaining neutral solution by adding a definite quantity of an acid to a definite quantity of a base or a base to an acid is called Neutralization
- Basic oxides turns red litmus to blue
- Acid oxides turn blue litmus to red

METALS AND NON METALS

- Elements are classified into metals and non metals based on their general properties
- Egyptians were the first to start using gold
- The period around 2500 B.C was called Bronze age
- The element with highest atomic number is Uranium
- The number of naturally occurring elements are 90
- An example of Metalloid is germanium

- Metals are Good conductors of heat and electricity
- Non metals are bad conductors of heat and electricity
- The melting point of Metals is high
- The melting point of non metals is Low
- Metals react with oxygen to produce basic oxides
- Non metals react with oxygen to produce acidic oxides
- Metals react with hydrogen to produced Hydrides
- The non metals react with hydrogen to produce covalent compounds
- The valency of Carbon is 4
- The chemical symbol of carbon is C
- The atomic number of carbon is 6
- The atomic mass number of carbon is 12
- The abundantly available metal in nature is Carbon
- The property of elements to exhibit same chemical property but different physical property Allotrophy
- The hardest substance that occurs in nature is Diamond
- The diamond is the hardest substance because the atoms in it are closely packed
- Diamond is used to cut glass
- The material that is used to make Pencil lead is graphite
- The carbon atoms in graphite are arranged in regular Hexagonal form
- Graphite is used as moderator in nuclear reactors
- The only solid lubricant is Graphite
- The scientific study of the properties, composition, structure of matter and accompanying energy changes is called Chemistry
- The color of the graphite is Brownish black
- The density of Diamond is 3.52 g/cm^2
- The density of Graphite is 2.2 g/cm^2
- The atoms in the diamond are arranged as a single giant molecule
- The substance obtained by burning wood in limited supply of air is charcoal
- The apparent density of Charcoal is Low
- Charcoal is used in the preparation of Gun powder
- Charcoal is used to decolorize and deodorize
- Charcoal is used in Purification of water
- The absorbing capacity of charcoal is increased by heating it to high temperature
- The powder in a cracker is black due to the presence of Carbon
- The percentage of composition of carbon in Lignite is 60%
- The percentage of the composition of carbon in bituminous is 78%

- Anthracite is also called as Smokeless fuel
- The process of hardening of rubber is called Vulcanization
- The substance used in the preparation of shoe polish is Soot
- The substance used in the manufacture of black paints is Soot
- The allotropic form of carbon used in the manufacture of Typewriters ribbons is Soot
- The allotropic form of carbon used in the manufacture of Printing ink is Soot
- The allotropic form of carbon used to prepare calcium carbide is Charcoal
- The reducing agent used in the extraction of iron from its ore is Coal
- The substance used in steam engines and industries is Anthracite coal
- The type of coal used to make coal tar is Bituminous coal
- The substance used in preparation of water glass and producer gas is Coke
- When calcium oxide and coke are heated Calcium carbide is formed
- Calcium carbide react with water to form Acetylene
- The binary compound of silicon and carbon is Silicon carbide
- Silicon carbide is also called as Carborundum
- The material used to sharpen cutting tools as grinding stone is Silicon carbide
- The compounds of carbon are Carbonates and Bicarbonates
- When carbon dioxide dissolves in water carbonic acid is produced
- The carbonic acid reacts with calcium hydroxide to give calcium carbonate
- $\text{CaCO}_3 \text{-----} \text{CaO} + \text{CO}_2$
- Sodium carbonate is commonly known as Washing soda
- When carbonic acid is treated with sodium hydroxide, sodium carbonate is produced
- $\text{CO}_2 + \text{H}_2\text{O} \text{-----} \text{H}_2\text{CO}_3$
- The substance used in the manufacture of glass is Sodium Carbonate
- The sodium hydroxide reacts with carbonic acid to form Sodium bicarbonate
- The chemical used as an Antacid is Sodium Bicarbonate
- Baking soda is a mixture of Sodium carbonate and Potassium hydrogen tartarate
- Sodium carbonate when boiled gives Sodium carbonate + Carbon dioxide + Water
- Sodium bicarbonate is also called as Baking soda
- Sodium carbonate is also called as Sodaash
- A liquid metal is Mercury
- A liquid non metal is Bromine
- A soft metal is sodium
- A non metal which conducts electricity is Graphite
- The property of metals that enables them to be hammered into thin sheets is called Malleability
- The property of metals that enables them to be drawn into thin wires is called ductility

- A non metallic element with the atomic number 6 and valency 4 is carbon
- An example for carbon occurring in nature in free state is Diamond
- An example for carbon occurring in combined state is Natural gas
- An example for crystalline form of carbon is Graphite
- An example for Amorphous form of carbon is Charcoal
- The allotropic form of sulphur is Rhombic sulphur and Monoclinic sulphur
- The allotropic form of oxygen are ordinary oxygen and ozone
- The element which is the basis of life on earth is Carbon
- The apparent density of wood charcoal is less due to its porous nature
- The atoms in graphite are arranged in Hexagonal layers
- The atoms in the diamond are arranged in a rigid tetrahedral structure
- The allotropic form of carbon used to make gas masks is Charcoal
- The amorphous impure form of carbon found in earth's crust is coal
- The process of preparing coke by heating Bituminous coal to around 1573K in the absence of air is called Destructive distillation
- The allotropic form of carbon used in vulcanization of rubber is Soot
- The allotropic form of carbon which has heat resistant crucibles is Graphite
- The allotropic form of carbon used to drill holes is Diamond
- The allotropic form of carbon used in the manufacture of Synthetic petrol is Coal
- Calcium carbide is used for producing Ethyne
- The melting point of silicon carbide is high
- The chemical name of lime stone is Calcium carbonate
- The zinc carbonate is also called as Calamine
- The lead carbonate is known as Cerussite
- The copper carbonate is known as Malachite
- Lime water turns milky when carbon dioxide is passed through it due to the formation of insoluble carbonate salt
- Lime water is chemically called Calcium hydroxide
- Lime water is prepared by adding quick lime to water
- The purest forms of carbon are Diamond and graphite
- The only allotrope of carbon which is transparent is Diamond
- The chemical name of quick lime is calcium oxide
- A substance having a metallic luster, ductile and good conductor of electricity is called a Metal
- A mineral from which one or more metals can be extracted profitably is called Ore.
- The science and technology of extracting metals from their ores is called Metallurgy.
- The unwanted material present in the ore is called Gangue.

- A chemical compound that conducts electricity in its molten or solution state is called Electrolyte.
- Chemical decomposition of an electrolytic compound due to the passage of electricity through it is called Electrolysis
- A homogenous mixture of two or more metals is called Alloy.
- The earth's crust is the biggest source of metals.
- The metals that are available in Free State in nature are Gold, Silver and Platinum.
- A brownish hydrated oxide of iron that is formed on the surface of iron when it is exposed to moisture and air is called Rust.
- The chemical formula of rust is $\text{Fe}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$
- The chief ore of Copper is Copper pyrites
- The symbol of copper is Cu
- The atomic number of copper is 29
- The mass number of copper is 64
- The electronic configuration of copper is $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$
- The chief sulphide ore of copper is Copper pyrites
- The molecular formula of copper pyrites is CuFeS_2
- The constituents of alloy Brass are copper and zinc
- The chemical symbol of Iron is Fe
- The atomic number of iron is 26
- The mass number of iron is 56
- The electronic configuration of iron is $1s^2 2s^2 2p^6 3s^2 3p^6 3d^6 4s^2$
- The gas produced when metals react with dilute mineral acids is Hydrogen
- The alloy of iron which is used for making magnets is Alnico
- The constituents of German silver are Copper, zinc and Nickel
- The Carbonate ore of iron is Siderite
- The constituents of Bronze are copper and tin
- Sodium is preserved in Kerosene
- Sodium is kept inside kerosene to prevent sodium from discoloring
- The metal that is highly reactive with air is Sodium
- When a copper foil is heated in a flame, a black layer is seen on the copper foil. This due to the formation of an oxide of copper on the foil
- Rusting occurs on a material of iron when it is kept in moist air
- The rust formed on a material of iron is nothing but hydrated oxide of iron
- The reaction between sodium and water liberates hydrogen
- Sodium reacts with water forming sodium hydroxide and hydrogen
- The metal that takes longer time to react with dilute hydrochloric acid is iron

- Metals react with concentrated nitric acid to produce metallic nitrates and nitrogen dioxide.
- Aluminum reacts with chlorine to form aluminum chloride.
- During the extraction of copper from its pyrites, the ore is concentrated by froth floatation
- Copper obtained from copper pyrites is purified by the method of Electrolysis
- Gun metal is the alloy that is used to make gears and castings
- The molecular formula of Siderite is FeCo₃
- The metal that can be extracted from hematite is Iron
- Coke is used in extraction of iron because it is a good reducing agent
- Calcium silicate produced during the extraction of iron is a Slag
- The melting point of iron is 1808K
- Iron displaces copper from copper sulphate solution, reaction indicates iron is reactive than copper
- Iron reacts with copper sulphate solution forming iron sulphate and copper
- The alloy that is commonly used to make heating coils is Nichrome.
- The alloy used to make pendulum of clocks is Invar steel
- The alloy of iron used to make surgical instruments is stainless steel
- Permanent artificial magnets are usually made from alnico
- The charge used in a blast furnace in extraction of iron consists of hematite, limestone and coke
- Iron is extracted by using the method Blast furnace
- The compound obtained when steam is passed over lead is Lead oxide
- The compound obtained when magnesium reacts with dilute hydrochloric acid is MgCl₂
- Metals when react with dilute nitric acid produce metallic nitrates and nitrogen dioxide
- The slag obtained at the bottom of the blast furnace is Calcium silicate
- When sodium burns in excess of oxygen, it produces Sodium peroxide
- Sodium reacts with water to produce sodium hydroxide and hydrogen.
- Magnesium reacts with oxygen in air to form Magnesium oxide
- Zinc react with nitric acid to form zinc nitrate and hydrogen
- The alloy of copper used to make statues is Bronze
- The constituent metals of alloy Gun metal are copper, tin and zinc
- The iron obtained from blast furnace is called Cast iron
- The components of alloy Nickel steel are iron and nickel
- The constituents of the alloy Alnico are iron, nickel, aluminum and cobalt
- The constituents of the alloy steel are iron and carbon
- The components of alloy Nichrome are iron, nickel and chromium

- The components of alloy invar steel are iron, nickel and carbon
- Calcium oxide reacts with silica to form calcium silicate
- The molecular formula of copper glance is CuS_2
- The molecular formula of Malachite is $[\text{CuCO}_3 \text{ Cu (OH)}_2]$
- The molecular formula of Azurite is $[2\text{CuCO}_3 \text{ Cu (OH)}_2]$
- The method used to concentrate copper ore is called Forth floatation
- The molecular formula of Hematite is Fe_2O_3
- The molecular formula of Magnetite is Fe_3O_4
- The molecular formula of limonite is $\text{Fe}_2\text{O}_3 \text{ H}_2\text{O}$
- The alloy of copper used to make ornamental wares is German silver
- The metals that have tendency to donate electrons are called Electropositive
- The hydrated oxide of iron is called Rust
- The reducing agent used in the blast furnace to reduce Fe_2O_3 to Fe is Coke
- The slag obtained during the extraction of copper is Ferrous Silicate
- The black layer obtained on copper after heating in air is Oxide of copper
- The chemical formula of Sodium Peroxide is Na_2O_2
- The metals which do not react with any components of air are gold and Platinum
- The blisters so formed on the surface of copper is due to the escaping of Sulphur di oxide
- The charge is a mixture of hematite, limestone and coke in the ratio 8:1:4
- The impure copper obtained using froth floatation is Bliss copper
- The chemical elements not possessing the properties of metals are called Non metals
- The existence of a chemical element in two or more forms differing in their physical properties but having same chemical properties is called Allotropy
- The chemical symbol of silicon is Si
- The atomic number of silicon is 14
- The mass number of silicon is 28
- The electronic configuration of silicon is $1s^2 2s^2 2p^6 3s^2 3p^2$
- Sodium aluminum silicate is also called as Zeolite
- Naturally occurring compound of silicon is called Sodium aluminium silicate
- Silicon reacts with oxygen in air to form silicon dioxide
- When mixture of silicon and coke are strongly heated in electric furnace Silicon carbide is formed
- Silicon is the second most abundant element present in the earth's crust
- The gas produced when steam is passed over red hot silicon is Hydrogen
- The sand is chemically known as Silicon dioxide
- The compound commonly present in sand and quartz is Silicon dioxide
- The melting point of silicon is 1683K

- The Sodium silicate is commonly known as Water glass
- The compound of silicon used as an abrasive is Silicon carbide.
- The two most abundant element's in the earth's crust are oxygen and silicon
- The common constituent of garnet, zircon, topaz and opal is silicon
- Crystalline form of silicon can be obtained by reducing silica with coke
- The products formed when red hot silicon decomposes steam are silicon dioxide and hydrogen
- The electrical conductivity of pure silicon increases with increase in its temperature.
- The number of valence electrons in silicon are 4
- The electrical conductivity of pure silicon can be increases by doping it appropriately
- Silicon can be turned into n type semiconductor by doping it with pentavalent impurity
- Doping silicon with boron makes it a p type semiconductor
- Sodium aluminium silicate is used to soften hard water.
- The doped silicon is used to make diodes and transistors
- Silicon carbide is used as an abrasive for grinding glasses
- The compound that is main constituent of clay is sodium aluminium silicate
- The only non metal that is good conductor of electricity is Graphite
- The method that can be adopted to increase the conductivity of silicon is Doping
- The silicon compound that is used in making chemical apparatus, optical instruments is Quartz
- Sodium silicate is also called Water glass
- Sodium silicate is used in calico printing
- The stable isotope formed when phosphorous 30 decays by emitting a positron is Silicon
- The number of electrons that revolve in the outer most orbit of silicon atom are 4
- The element that converts silicon into a p type semiconductor is Boron
- Silicon was first isolated in 1824
- Silicon was found to be an element by John Berzellius
- The non metal which is the essential component of bones, teeth is Phosphorous
- The chemical symbol of Phosphorous is P
- The atomic and mass number of Phosphorous is 15 and 31
- The electronic configuration of Phosphorous is $1^2 2s^2 2p^6 3s^2 3p^3$
- The chemical formula of Phosphorite is $Ca_3 (PO_4)_2$
- The chemical formula of Apatite is $3 Ca_3 (PO_4)_2 CaF_2$
- The chemical formula of chlorapatite is $3 Ca_3 (PO_4)_2 CaCl_2$
- The allotropic forms of Phosphorous are Red and White Phosphorous
- The main phosphorous fertilizers are NPK
- The chemical symbol of Sulphur is S

- The transition temperature of Sulphur is 95.5°C
- The main component of gun powder and explosives is Sulphur
- The non metal used in the vulcanizing of natural rubber is Sulphur

WATER

- 70% of the earth's surface is covered with water
- The percentage of water present in oceans is 97.2%
- 0.005% of total quantity of water on the earth circulates through water cycle
- The density of water at 100°C is 984.4kg/m³
- The density of water at 0°C is 998.87 kg/m³
- The density of water in the form of ice is 916.8 kg/m³
- The molecular formula of water is H₂O
- The molecule of water consists of 2 atoms of hydrogen and 1 atom of oxygen
- $2\text{H}_2 + \text{O}_2 \text{-----} 2\text{H}_2\text{O}$
- The person who proved that water is a compound of hydrogen and oxygen was Henry Cavendish
- The ratio of hydrogen and oxygen present in the molecule of water is 2:1
- The device that decomposes water with the help of electricity is Voltmeter
- The exact formula of the water molecule was established by S. Cannizarro
- The electrolytic cell used to measure the strength of current flowing through the circuit is known as Voltmeter
- The device voltmeter is also called as Coulombmeter
- Water reacts with sodium to give sodium hydroxide and hydrogen is liberated
- $\text{Ca} + 2\text{H}_2\text{O} \text{-----} \text{Ca}(\text{OH})_2 + \text{H}_2$
- The mixture of CO and H₂ in the ratio 1:2 is called Water gas
- $\text{SO}_3 + \text{H}_2\text{O} \text{-----} \text{H}_2\text{SO}_4$
- T.M.C is the measure of volume of water
- T.M.C is abbreviated as thousand Million cubic Feet
- The percentage of water available on earth for drinking purpose is 1%
- The earth appear as the blue ball when viewed from space
- The decrease in water content in our body below the certain level is called Dehydration
- The cyclic movement of water through the biosphere is called Water Cycle

- The water gets into the atmosphere through evaporation
- The boiling point of pure water is 100°C
- The freezing point of pure water is 0°C
- The density of water at 4°C is 1 kg/ltr
- Water is called as Universal solvent because it dissolves more number of substances in it
- When water freezes its volume increases
- The water contains Hydrogen and Oxygen in the ratio 1:8 by mass
- The water molecules which do not undergo any change and retain their characteristics even in the combined state, the compounds are called hydrates
- The impurities that are not soluble in water are called Floating impurities
- An example for floating type of impurity in water is Twigs
- The impurities that dissolve in water are called Dissolved impurities
- The process of removal of suspended impurities from potable water is called Coagulation
- The process of Removal of bad odour and color, if any from potable water is called Aeration
- The process of removal of floating impurities from potable water is called Filtration
- The process of destroying the disease causing germs in potable water is called Chlorination
- The process of converting a liquid into vapor by heating and condensing the vapour into liquid form collecting the condensed liquid is called Distillation
- The discharge of super heated water into water bodies causes Thermal pollution
- The chemical decomposition of a compound by water is called Hydrolysis
- A chemical used to sterilize drinking water is Chlorine
- Alum is used while treating potable water for removing the suspended impurities
- About 70% of our body weight is water
- The solvent which is known as universal solvent is Water
- The chemical compound which occurs in the nature in all the three states of matter is Water
- The process by which the water in the atmosphere turn into snow is called Condensation
- The process by which sea water is changed into pure water is Distillation
- The device in the electrolysis takes place is Voltmeter
- The unit that denotes the quantity of water flow is Cusecs

- Hardness of water is due to presence of dissolved calcium and magnesium salts
- The chemical name of heavy water is Deuterium oxide
- Distilled water is used in the manufacture of medicines
- The form of water used in the manufacture of chemicals is Distilled water
- The water that readily gives lather with soap is called soft water
- The water that does not readily gives lather with soap is called Hard water
- The water that is composed of only H_2O molecules is called Pure water
- The water that is safe and fit for human consumption is called Potable water
- The water that contains dissolved bicarbonates of calcium or magnesium or both is called Temporary hard water
- The water that contains the one or more dissolved chlorides or sulphates of calcium and magnesium is called Permanent hard water
- Naturally occurring sodium aluminate silicate is called Zeolite
- Artificially prepared sodium aluminum silicate is called Permutit
- The chemical compound made up of oxygen and hydrogen is Water
- The water is classified based on the way it reacts with soap
- The pure water from sea water can be obtained by Distillation
- The chemical formula of calcium carbonate is $CaCO_3$
- The chemical formula of magnesium carbonate is $MgCO_3$
- The salt that does not cause hardness in water is Sodium chloride
- The movement of water through the biosphere is called Water cycle
- A simple way of softening temporary hard water is Boiling
- A salt of sodium that has properties of soap is Sodium stearate
- A salt of potassium that has the properties of soap is Potassium stearate
- The main cause for the lowering of the storage capacity of water is Silt collection
- The ions that cause hardness of water are Ca^{++} and Mg^{++}
- The use of hard water in industrial boilers can cause scaling on the inner walls of the boilers
- The scaling on the inner walls of the boilers is generally due to the deposition of carbonates
- Boiling of hard water results in removal of temporary hardness only

- When temporary hard water is boiled soluble bicarbonates are converted into insoluble carbonates
- In soda process of softening water, the chemical added to remove hardness is Sodium carbonate
- In soda process, the salts that cause hardness are converted into their respective carbonates
- Permutit process of softening water removes all types of hardness
- In permutit process the dissolved salts of calcium and magnesium are converted into insoluble permutits
- The one of the method of obtaining pure water from sea water is Sand filtration
- The substance that dissolve in water in highest number are Inorganic ionic compounds
- The scientist who showed for the first time in 1781, water is produced when hydrogen burns in air is Sir Henry Cavendish
- The scientist who proposed that water is not an element but compound made of oxygen and hydrogen is Lavosier
- The water is classified depending on the negative ions present along with Ca⁺⁺ and Mg⁺⁺
- The type of water that is not suitable for daily activities is Hard water
- The permutit is present in the form of Porous Gel
- The Permutit process is also known as Base exchange process
- The element which is not removed by the permutit process is Lead
- The advantage of permutit process is it is Economical
- The effort made by society towards the rational use, prevention of pollution and recycling of water is called Water conservation
- Water is called universal solvent because it dissolves highest number of compounds in it
- The salts of iron present in hard water form a yellow stain on clothes
- The permutit process is useless if it contains the salts of Fe and Mn
- The practice of collecting, storing and utilization of rain water is known as Rain water harvesting
- The substance which is insoluble in water is Calcium carbonate
- The substance that is soluble in water is Sodium chloride
- Electrolytes when dissolved in water are completely dissociated into ions is Strong Electrolyte

- Electrolytes which partially dissociate into ions when dissolved into ions is Weak Electrolyte
- An example for Strong Electrolyte is Sodium Chloride
- An example for Weak Electrolyte is Acetic Acid
- The substance which conducts electricity either in liquid form or in solution form is Electrolyte
- The substance that does not conduct electricity in molten or solution state is Non Electrolyte
- The mass of substance liberated at each electrode is proportional to the quantity of electric charge passed through the electrolyte is Faradays first laws of Electrolysis'
- Is the same quantity of electric charge is passed through different electrolytes the mass of substance liberated at different electrodes are proportional to their respective chemical equivalents is Faradays second law of Electrolysis
- Atomic mass of copper is 63.55amu valency of copper is 2 then the chemical equivalent of copper is 31.77
- The process of depositing a thin layer of one metal over the other metal by electrolysis is Electroplating
- A mixture in which the size of particles is between the particles that are found in a true solution and suspension is Colloid
- The example for the Disperse phase solid and medium solid is Coloured glass
- The example for the Disperse phase solid and medium Liquid is starch
- The example for the Disperse phase solid and medium gas is smoke in air
- The example for the Disperse phase liquid and medium solid is Butter
- The example for the Disperse phase liquid and medium Liquid is Milk
- The example for the Disperse phase liquid and medium gas is mist in air
- The example for the Disperse phase gas and medium solid is air bubbles in silicate
- The example for the Disperse phase gas and medium Liquid is water vapours in air.

THE LIVING WORLD

- A branch of science that deals with the study of living organisms is called Biology
- The basic and structural and functional unit of all living beings is called Cell
- An example for microscopic organism found on earth is amoeba

- The chief purpose of respiration is production of energy
- The organ of respiration in Fish are Gills
- The organ of respiration in Insects are trachea
- The organ of respiration in Frog is Skin and lungs
- The organ of respiration in human beings is Lungs
- The organ of respiration in plants are Stomata in leaves
- The process by which green plants prepare their own food is called Photosynthesis
- The organisms which feed on other organisms are called Carnivores
- The organisms which feed on plants only are called Herbivores
- An example for Herbivore is Deer
- An example for Carnivore is Tiger
- The increase in size of an organism is called Growth
- The growth in living beings in Internal
- The growth in living beings is caused by Cell division
- The organs of locomotion in Ameoba are Pseudopodia
- The organs of locomotion in Euglena are Flagella
- The organs of locomotion in Paramecium are Cilia
- The organs of locomotion in Cow are limbs
- The organs of locomotion in Bird are wings
- The organs of locomotion in Fish are Fins
- The organs of locomotion in Hydra are Tentacles
- An example for animal which does not show movement is Coral
- An algae which show s the bodily movement is chlamydomonas
- The change in the environment that is perceived by an organism is called Stimulus
- The reaction of an organism to the Stimulus is called Response
- An example of plant that shows response to stimuli is touch me not
- The period between the birth and the death of an organism is called Life span
- The systematic grouping of organisms based on their similarities and differences is called Classification
- The branch of biology that deals with the classification, identification and naming of living organisms is called Taxonomy
- A book written by Parashara which gives detail about plant science is Vrukshayurveda

- Aristotle is known as the father of biology
- The first person to follow the method of observation and experimentation in the study of living organisms was Aristotle
- The book written by Charaka that gives detail about medicine is Charaka Samhithe
- Charaka is known as the father of Ayurveda
- Carollus Linnaeus is called the father of modern taxonomy
- The system of naming organisms given by Carollus is called binomial Nomenclature
- The smallest unit of classification of organism is called species
- The scientific method of naming organisms with two words the first word which refers to the genus and the second to the species is called Binomial nomenclature
- The binomial nomenclature of Horse is Equus Caballus
- The binomial nomenclature of Donkey is Equus asinus
- The binomial nomenclature of Humans is Homo sapiens
- The binomial nomenclature of Grasshopper is Poecilecera Picta
- The binomial nomenclature of Tiger is Felis tigris
- The binomial nomenclature of Frog is Rana hexadactyla
- The binomial nomenclature of Cat is Felis Domestica
- The binomial nomenclature of Lion is Felis leo
- The binomial nomenclature of Cow is Bos Taurus
- The binomial nomenclature of Mango is Mangifera indica
- The binomial nomenclature of Orange is Citrus reticulate
- The binomial nomenclature of Onion is Allium cepa
- The binomial nomenclature of Coconut is Cocos nucifera
- The binomial nomenclature of Amoeba is Amoeba Proteus
- The binomial name of Typhoid bacteria is Eberthella typhosa
- The organisms in which the nuclei of cells are bounded by a definite nuclear membrane are called Eukaryotes
- The organisms in which the nuclei of cells are not bounded by a definite nuclear membrane are called prokaryotes
- An example for Prokaryote is Bacteria
- An example for Eukaryote is Amoeba
- The living organisms are classified into 5 major kingdoms

- An example of organism belonging to kingdom monera is Blue green algae
- Blue green algae are usually found in fresh water
- An example for blue green algae is nostoc
- A example for free living protozoa is Amoeba
- A example for parasitic protozoa is Plasmodium
- An example for Unicellular algae is Diatoms
- An example for filamentous algae is Spirogya
- An example for Colonial algae is Volvox
- An example for Multicellular algae is Sargassum
- The mushrooms belong to the kingdom called Fungi
- Volvox belong to the group Protista
- The organisms that feed on death and decaying matter are called Saprophytes
- An example for Saprophytes is Mushroom
- An example for plant virus is TMC
- HIV stands for Human immuno Virus
- TMC stands for Tobacco Mosaic virus
- An example for Bacteria virus is Bacteriophage
- Coconut belongs to the species nucifera
- Humans belong to the genus Homo
- Humans belong to the species Sapiens
- The undifferentiated body found in Algae is known as Thallus
- The root like structures found in bryophytic plants are called Rhizoids
- The structures found in adult gametophytic phase of bryophytes which produces male gametes are called Antheridium
- The structures found in adult gametophytic phase of bryophytes which produces female gametes are called Archegonium
- The plants that have vascular tissues such as xylem and phloem are called Tracheophytes
- The reproduction in organisms that occurs by the fusion of gametes is called Sexual reproduction
- The plants that bear seeds enclosed inside a structure called fruits are Angiosperms
- The flowering axis of a plant body in which a cluster of flowers are found together is called Inflorescence

- The rapid transformation of an organism from larval to adult form is called Metamorphosis
- The type of fertilization in which the union of gametes takes place outside the body of parents is called External fertilization
- The type of fertilization in which the union of gametes take place inside the body of the parents is called Internal fertilization
- The hollow, light bones filled with air sacs found in the body of birds are called Pneumatic bones
- An example for unicellular algae is Diatoms
- An example for red algae is Polysiphonia
- An example for brown algae is Sargassum
- An example for green algae is Ulothrix
- The red pigment present in the body of red algae is Phycoerythrin
- Bryophytes are called as amphibians of the plant kingdom
- An example for bryophytes is Funaria
- The vascular plants without seeds are called Pteridophytes
- The vascular plants with seeds but no fruits are called Gymnosperms
- The first terrestrial plant to develop vascular tissue is Pteridophytes
- An example for pteridophytes is Nephrolepis
- A fully formed gametophyte of a fern which has an independent structure is called Prothallus
- An example for gymnosperms is Cycas
- An example for angiosperms is Mustard plant
- Angiosperms are classified based on the general organization
- The reproductive organs in angiosperms are Flowers
- The plants which bear seeds that contain only one cotyledon are called Monocotyledon
- An example for monocotyledon is maize
- The plants which bear seeds that contain two cotyledons are called Dicotyledons
- An example for dicotyledon is Groundnut
- The type of root system found in monocot plants is fibrous root system
- The type of root system found in dicot plants is Tap root system
- The solid, unjointed stiff rod located on the dorsal side of chordate is called Notochord

- An example for cold blooded animal is Fish
- An example for limbless amphibian is Ichthyophis
- A class of vertebrates characterized by feathers, warm blood and wings are called Birds
- The voice box of birds is called Syrinx
- The chief organ of respiration in birds are Lungs
- The warm blooded vertebrates whose body is covered with hair and mammary glands are present in females are called Mammals
- An example for egg laying mammals is Echinda and Platypus
- The green pigment present in green algae is Chlorophyll
- The pigment that gives brown color to the brown algae is Xanthophylls
- The two kind of spores produced in gymnosperms are Microspores and Megaspores
- The locomotory structures found in fish are fins
- The type of fertilization seen in fish and frog is external fertilization
- The animals that require both the land and water to complete their life cycle are called Amphibians
- The number of digits usually present in each limb of the reptiles are 5
- An example for limbless reptile is Snake
- The heart of a fish is 2 chambered
- The heart of the amphibians and reptiles is 3 chambered
- The heart of aves and mammalian is 4 chambered
- The pairs of carnial nerves found in the nervous system of birds are 12
- The type of fertilization found in reptiles, birds and mammals is Internal fertilization
- The chief excretory organs in vertebrates are a pair of Kidneys
- The organ of respiration in fish are Gills
- The multicellular cone like structure is found in gymnosperms
- Kelps are good example for multicellular algae
- The pigments present in red algae are phycoerythin and phycocyanin
- The cell wall of algae is composed of cellulose and pectin
- Asexual reproduction in algae occurs through production of spores
- Riccia is the bryophyte that grows horizontally in the soil
- Mosses is the bryophyte that grows vertically to the soil surface
- The dependent generation in bryophytes are known as Sporophyte

- Gametophyte generation of bryophytes manufacture their own food
- Reproduction in bryophytes takes place by sexual and vegetative method
- Antheridium and Archegonium are found in adult gametophytes
- The walking ferns are salvenia and Azolla
- A common gymnosperm found in the Himalayan forests is Cedrus deodara
- The microsporophyll present in cycas produce male spores
- The multicellular reproductive structures in gymnosperms are called Cones
- A single formed by the fusion of male and female gamete is called Zygote
- The most dominant group of plants on earth today are Angiosperms
- Angiosperms are commonly called Flowering plants
- An example for monocot is Ragi
- An example for dicot is Green gram
- Coconut tree and paddy plants are monocots
- The most advanced group of angiosperms are monocots
- A paddy plant has fibrous root system and parallel venation in leaves
- The part of the seed from which the root system arises is Radicle
- A single central root is present only in dicotyledons
- In monocots, we find a fibrous root system
- Animals which have back bone are called vertebrates
- The vertebrates have openings in the pharynx called Gill slits
- The fins in the fish helps in balancing the body
- The number of digits in the forelimbs of an amphibian is usually 4
- The nervous system in a frog has 10 pairs of cranial nerves
- Each limb of the mammal usually have 5 fingers
- The multicellular cone like structure is found in Bryophytes
- The presence of oliaphragm in between the thoracic and abdominal cavities is found in Mammals
- Red, Brown and green algae belong to the group called Metaphyta
- The fins which are useful for locomotion are Paired fins
- Female sex cells in gametophytes are produced by Megasporophyll
- Poikilothermic animals are also called the animals of Cold blood
- The first vertebrate to appear on the land are Amphibian
- Streamed lined body system is found in Pisces
- The type of chlorophyll pigments present in red algae are a and b

- Pteridophytes are also called as Tracheophytes
- The Japanese food prepared by using algae is called Kombu
- Dicot leaves show reticulate venation
- The technique of growing the dwarf of trees is called Bonsai
- The function of scales found on the body of fish is to protect the skin
- The inactive period or winter sleep of frogs is called Hibernation
- The inactive period or summer sleep of the frogs is called Aestivation
- The group of creeping or crawling vertebrates are called Reptiles
- The egg laying animals are called Oviparous animals
- The animals giving birth to young ones are called Viviparous animals
- Algae are capable of photosynthesis because of presence of Chlorophyll
- The mammal called Beaver is an excellent architect of the animal world
- The mammal that walks and sleep upside down is Sloth
- The two types of sexual reproduction found in multicellular algae is spore formation and fragmentation
- The sporophytes of bryophytes are parasitic because they do not have chlorophyll
- Pteridophytes are called Tracheophytes because they possess vascular tissue
- The multicellular cone like structures are found in Gymnosperms
- The diploid cell formed by fertilization is Zygote
- The female reproductive structure of the flower is Stigma, ovary and style
- The skin of frog is soft and moist because mucous glands secrete mucous
- The muscular membrane that separates thorax from abdomen in mammals is Diaphragm
- The vertebrate which possesses external pinna are mammals
- The animals that possess back bone are Vertebrates
- The animals that do not possess back bone are called Invertebrates
- The members of the phylum porifera are commonly called Sponges
- The numerous pores on the surface of porifera are called Ostia
- The large central cavity in the body of porifera are Spongocoel
- The internal skeleton in the form of crystalline structures in sponges is called Spicules
- The animals having the internal cavity are called Coelenterata
- The body walls of coelenterate is made up of two layers Ectoderm and Endoderm
- The group of animals with long and flat body are called Flatworms
- An example for a flat worm found in water or moist soil is Planaria
- An example for the flat worms found inside the body of vertebrates is tape worm
- The animals whose body made up of two layers is called Diploblastic animals
- The animals whose body is made up of three layers is called Triploblastic animals

- The group of animals having elongated, cylindrical and unsegmented bodies are Aschelminthes
- The common name of Aschelminthes is Round Worms
- The group of animals having elongated body consisting of partitions is Annelida
- The cavity that exists between the body wall and the digestive tube is Coelem
- The largest phylum in the animal kingdom is Arthropoda
- The unique system of canals containing appendages is Tube feet
- An example for sponges is Sycon

STUDY OF CELLS

- The compounds of carbon are called Organic compounds
- The elements present in Ammonia are Nitrogen and Hydrogen
- Glucose is made up of carbon, hydrogen and oxygen
- The basic organic molecules from which biological molecules are formed Basic building blocks
- The early life on the earth emerged in the form of cells
- The word cell was first coined by Robert Hook
- The branch of biology that deals with the study of cells is called Cytology
- The first person to suggest that living beings are made up of cells was Robert Hook
- The cell theory was proposed by M.J.Scheilden and Theodor Schwann
- The device that is used to reveal the ultra structure of a cell is Electron Microscope
- The thin membrane surrounding the living cell is called Cell Membrane
- The main function of the cell membrane is to maintain the shape of the cell
- The two important process involved in movement of materials in and out cells is Osmosis, Diffusion
- The movement of molecules from the region of higher concentration to the region of lower concentration is called Diffusion
- The movement of molecules from the region of lower concentration to a region of higher concentration is called Osmosis
- The movement of molecules from a region of lower concentration with the expenditure of energy is called Active transport
- An example for active transport is the movement of sodium ions across cell membrane
- The function of cell wall is to give protection the plant body

- The cell organelles are classified based on their structure
- An example for membranous organelles is Golgi complex
- An example for non membranous organelles is Centrioles
- The organelles in the cytoplasm that are bound by membranes are called Membranous organelles
- The organelles of a cell that are neither bound by nor consists of membranes are called Non membranous organelles
- A sac like organelle having a number of flattened membranous structures stacked one above the other is called Golgi complex
- The two types of endoplasmic reticulum are Rough and Smooth Endoplasmic reticulum
- A gel like material found inside the cell membrane is called Cytoplasm
- The network of membranes scattered throughout the cytoplasm extending from the plasma membrane to the nucleus is called Endoplasmic Reticulum
- The finger like projections in the inner membrane of the mitochondria are called Cristae
- DNA stands for Deoxyribonucleic acid
- RNA stands for Ribonucleic acid
- ATP stands for Adenosine triphosphate
- The energy is stored in Mitochondria in the form of ATP
- The respiratory centers of a cell are located in the Mitochondria
- The power house of the cell is Mitochondria
- The organelles that contain powerful enzymes capable of breaking or digesting all organic material are called Lysosomes
- The lysosomes are known as Suicide bags
- The protein factories of the cell are Ribosomes
- The centrioles with transparent cytoplasm around them are called Centrosomes
- The organelles generally found in the cytoplasm consisting of proteins and usually found RNA attached to Endoplasmic reticulum are Ribosomes
- The human body cells consists of 46 chromosomes
- The various chemicals found in the cytoplasm are called Cell inclusions
- The shape of the plant cell is generally box type
- The function of ribosome's is to synthesize the proteins
- The function of lysosomes is to help in the digestion of chemical substances

- Chloroplast helps in the conversion of solar energy into chemical energy
- Plasma membrane controls the movement of materials in and out of the cell
- The spherical bodies consisting of RNA and present inside the nucleus of the cell is called Nucleolus
- The organ concerned with the secretory function of cells is Golgi complex
- According to Schleiden, Schwann cells are the basic structural and functional unit of living beings
- The cell which contains the cell wall is Plant cell
- The part of the cell which controls and co-ordinates the functions of the cell is Nucleus
- The carriers of hereditary characteristics are called genes
- Chloroplast is called the Kitchen of the cell
- The non living things present in the cell organelle are called Cell Inclusions
- The nucleolus is made up of RNA
- The layer that surrounds the nucleus is called Nuclear membrane
- The fluid present inside the cell membrane is Cytoplasm
- Organisms whose body is made up of only one cell is called Unicellular Organisms
- Organisms whose body is made up of many cells is called Multicellular Organisms
- A group of cells which have common origin with similar structure and function is called Tissue
- A group of similar tissues performing a particular function constitutes an Organ
- A group of related organs performing a set of common functions is called an Organ system
- A branch of biology which deals with the study of tissues and their organization in organs is called Histology
- The plant tissue in which active cell division is taking place is called Meristematic tissue
- Tissues that are derived from the meristems are called Permanent tissues
- The plant tissues composed of cells that are similar in structure and function is called Simple permanent tissue
- The water conducting tissues found in vascular plants is called Xylem
- The food conducting tissue found in vascular plants is called Phloem
- A waxy substance found on the epidermis of plants is called Cutin
- The muscles which are not under the control of organisms are called Involuntary muscles

- The connective tissue consisting of hard matrix are called Dense connective tissue
- The fluid matrix of the blood tissue is called Plasma
- The muscles which are under the control of organisms is called Voluntary muscles
- The plant tissues consisting of unspecialized cells is called Parenchyma
- A simple permanent tissue consisting of cells whose cell wall contains lignin is called Collenchyma
- The tissue that provides the elasticity and support to the growing organs is called Collenchyma
- The tissues that gives mechanical support to the plant is called Sclerenchyma
- The thick walled cells found in the hard shells of seeds and fruits is called Sclereids
- The cell wall of sclerenchyma is made up of Cellulose
- The plant tissues consisting of both living and non living cells are called Complex permanent tissue
- Xylem tissues are also called as Water conducting tissues
- Phloem tissues are also called as Food conducting tissues
- The cells that control the passage of food through phloem are called Companion cells
- The fiber that provide the tensile strength to the plant body is Phloem fibres
- The xylem and phloem are together arranged in a plant body in form of bundles is Vascular bundles
- The elongated tubular structures made of dead cells found along with the xylem vessels are Tracheids
- The tissue found in the outer most layer of the plant body are called Epidermal tissue
- The layer containing cutin is called Cuticle
- The several minute openings found on the epidermis of all the green aerial plants are known as Stomata
- The tissues found in the outer and inner walls of the skin of the animals is called Epithelial tissue
- A simple epithelial tissue consisting of flat plate like cells is called Endothelium
- The simple epithelial tissues consisting of elongated cells are called Columnar epithelium
- The fluid secreted by most of Columnar epithelium is Mucus
- The columnar epithelium bearing hair like structures called cilia are called Ciliated epithelium

- The simple epithelial tissue consisting of cube shaped cells are called Cuboidal epithelium
- The tissues concerned with the movement of the body are called Muscle tissues
- The muscle tissues are also called as Myofibres
- The muscles which are made up of elongated unbranched cylindrical fibres with striations are called Striped muscles
- The muscles that are responsible for locomotion are Striped muscles
- The special type of muscles that constitute the heart are called Cardiac muscles
- The tissues that connect the various other tissues of the body are called Connective tissue
- The tissues in which the fibres in the matrix are loosely arranged are called Loose connective tissues
- The tissues that are found below the skin are Aerolar tissues
- The connective tissue that is present beneath the skin, around the kidneys and in bone marrow is Adipose tissue
- A loose connective tissue consisting of very fine intercellular fibres are called Reticular tissue
- A band of connective tissue consisting of collagen fibre is called a Tendon
- A dense elastic fibrous connective tissue which connects the bones at the joints as called a Ligament
- The connective tissue consisting of cells embedded in a hard matrix are called Dense connective tissue
- A dense connective tissue that is flexible and elastic is called a Cartilage
- The shape of cartilage found in trachea is C shaped
- The fibres present in the cartilage tissue found between the vertebrae is called Collagen
- The solid, rigid and strong connective tissue that make up the skeleton is called Bone tissue
- The hallow cavities or spaces found in the long and strong bones of our body is called as Marrow Cavities
- The connective tissues having a fluid matrix are called fluid connective tissue
- The liquid connective tissue present in our body are Blood and Lymph
- The chief function of the red blood cells is to transport Oxygen
- The chief function of the white blood cells is to help in body defence
- The main function of the platelets is clotting of blood

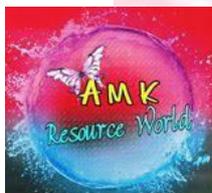
- The fluid connective tissue whose constituents are same as that of blood minus RBC is called Lymph
- The capillaries through which the lymph flows are called Lymph capillaries
- A small organ on the main course of a lymphatic vessel is called Lymph gland
- A tissue made up of nerve cells is called Nerve tissue
- The structural and functional unit of the nervous system is called Neuron
- A nerve cell consisting of a large cell body that has few brushes like structures are called Dendrites
- The tiny gap between the two successive neurons is called Synapse
- A knot like structure formed by several neurons together is called Ganglia
- The fluid matrix of the blood tissue is called Plasma
- In animals, fat is stored in adipose tissue
- Meristems are cells that help divide to produce cells
- Meristematic tissues are found in plants at the apex of the stem
- The main function of the collenchyma is to provide mechanical support to the plants
- The main function of sclerenchyma is to provide mechanical support
- The cell wall of sclerenchyma is made up of lignin, cellulose and hemicellulose
- The plant tissue that lacks protoplasm at maturity is Sclerenchyma
- The cellular layer covering the organs of a plant body is called Epidermis
- Epidermis in a plant protects the inner tissue of the plant
- Tracheids and vessels are elements of Xylem
- Loss of water vapour from the surface of leaves is called Transpiration
- Stomata on the epidermis of a plant body are made up of guard cells
- Stomata on the epidermis of a plant body control the rate of transpiration
- The entire body surface and the cavities inside the body of an animal are lined by Epithelial tissue
- An epithelial tissue consisting of single layer of cells is called Simple epithelium
- We find ciliated epithelium in the inner walls of our Nose
- The salivary ducts, sweat ducts and pancreatic ducts are lined with Cuboidal epithelium
- The epithelial tissue on the walls of the blood capillaries consists of Squamous epithelium
- Rhythmic contraction are noticed in Cardiac muscles
- Striated muscles are found in Leg muscles

- Striped muscles are also known as Skeletal muscles
- Unstriped muscles are also known as Smooth muscles
- The muscles involved in the movement of arm are Striped
- Voluntary muscles in our body help in locomotion of the body
- The tissue which is under the control of our will is Striped muscle
- The muscle which works throughout one's life without undergoing fatigue is Cardiac muscle
- Tendon is a structure that connects a muscle to a bone
- A ligament connects bone to bone
- The bone marrow helps to produce blood cells
- The large extension from the cell body of a neuron is known as Axon
- The tissue that provides the framework for the organs such as liver, spleen, bone marrow is Reticular tissue
- The function of axon is to carry the message away from the cell body
- Unstriped muscle help in the peristaltic movement in digestive system
- The type of cells that remove carbon di oxide from different parts of the body and bring it to the lungs are RBC
- The main function of bone tissue is to withstand the stress and strain
- The flowed tissue without RBC and proteins is called Serum
- The essential part of the immune system of the body produced by the lymph is Aerolar tissue
- The gap myelin sheath that covers the axon of the neuron is made up of Fatty sheath
- The elongated hollow cells found in xylem are called Xylem trachea
- The mucus producing cells in the epithelium are called Goblet cells
- The special type of cells present in epithelium of sense organs are Receptor cells
- The type of cells present in the stomata of the leaf are guard cells
- Reticular tissues are present in the respiratory tract and the alimentary canal
- The protective organ of digestion, excretion and reproduction is Pelvic griddle
- The type of WBC present in the lymph are called Phagocytes
- An neuron the axon is covered by a fatty sheath called as Myelin sheath
- The function of dendrites is to carry the impulses towards the cell body
- The two types of connective tissue are Cartilage and Bone

- The organ which contain elastic fibres in the matrix are Larynx
- The blood cells are produced in the fluid called Matrix
- Fibres used to make gunny bags, ropes and textile treads are formed by tissue called Sclerenchyma
- The muscles which do not fail easily are called Striped muscles
- The connective tissue which provides insulation against cold and protects the body from shock absorbers is called Adipose tissue
- The fluid that squeezes out of the blood through blood capillaries is called Lymph
- The essential part of immune system of the body produced by the lymph is called Antibodies
- The striped muscles that are usually attached to the bones are called Skeletal muscles
- The fluid tissue without RBC and proteins is called Lymphatic
- It is believed that the passage of food through the phloem is controlled by Companion cells
- The tissue which works as a shock observer in our body is Adipose tissue
- The seeds that have only one cotyledon are called Monocots
- The seeds that have two cotyledons are called Dicot
- Monocot plants have a fibrous root system
- Dicot plants have a tap root system
- The ability of the body to defend itself against infectious diseases is called Immunity
- The WBC present in our body that produces antibodies are T-Lymphocytes
- Meristematic tissues re also called Growing tissues
- Meristematic tissues are composed of cells called as Embryonic cells
- Dendrites carry the impulses towards the cell body
- The skeletal system consists of hard rigid structures called Bones
- Dense connective tissue forms the skeletal system of the body providing an internal supporting frame work
- The connective tissues are classified on the basis of their nature of matrix
- The tissue found in all parts of herbs is Parenchyma
- The reason for decrease in rate of transpiration during the winter season is Partial closing of Guard cells
- A wound is bleeding continuously with out clotting, it may be due to lack of Platelets

- The kind of epithelium found in the External auditory canal, oesophagus and vagina is Stratified squamous epithelium
- The muscles are classified into different types based upon their structure function and location
- The minute hair like, short protoplasmic processes are called Cilia
- The longest bone of the body is Femur or Thigh bone
- The smallest bone of the body is middle ear bone
- The double layered membrane surrounding the nucleus is Nuclear membrane
- The clear jelly like ground substance in nucleus is Nucleoplasm

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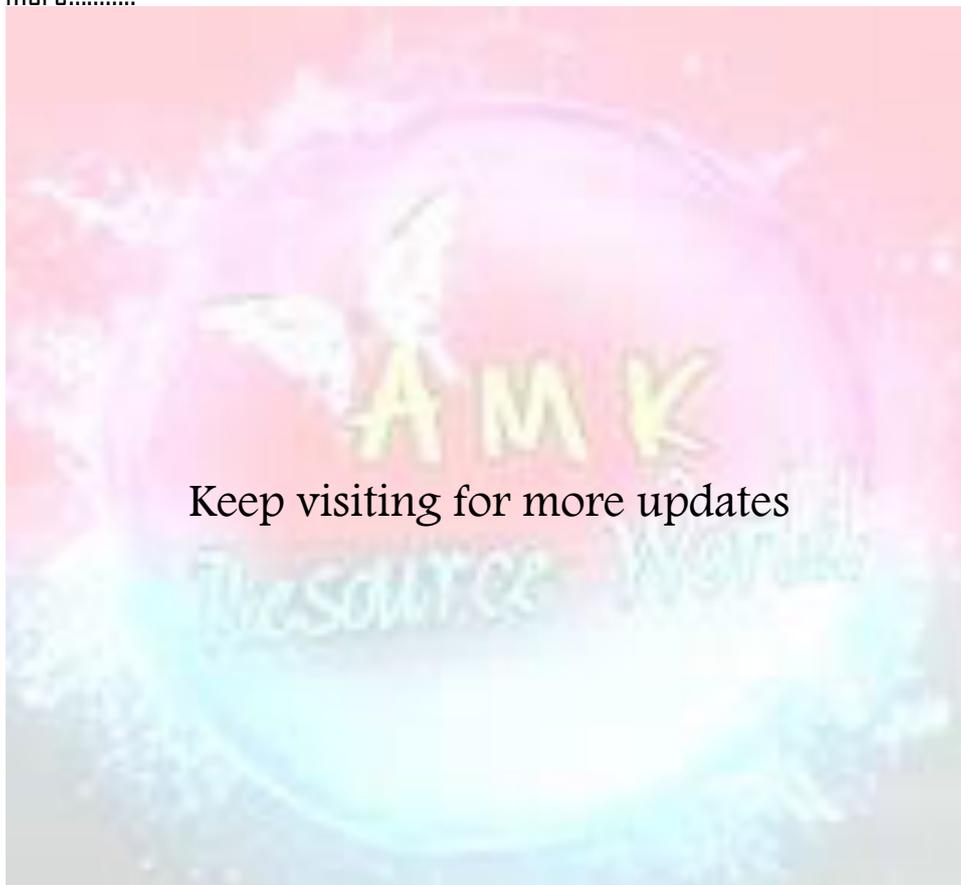
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