Year 7 Revision List

Biology

BBL1: Animal cells

1. Identify the location of the sub-cellular structures in animal cell diagrams, nucleus, cytoplasm, cell membrane and mitochondria.
2. The function of the cell membrane is to control the movement of substances into and out of the cell.
3. The cytoplasm is the jelly-like substance found in cells where reactions happen
4. The nucleus is the part of the cell that contains the genetic material of the cell
5. The function of the mitochondria is to transfer energy.
6. A group of similar cells working together form tissues, tissues work together to form organs, many organs working together form organ systems, and all of the organ systems form organisms.
7. A light microscope can be used to view objects that are too small to see with the naked eye
8. Identify the key parts of the microscope to include the: stage, eye piece lens, objective lens, focussing wheel.
9. The three main functions of the human skeleton are protection, production of blood cells and support
10. The place where two bones meet is called a joint
11. Muscles are attached to bones with tendons to help them move
12. A muscle will contract to exert a force on a bone and bring about movement around a joint
13. Most movement in the body is controlled by two muscles that work together – these are called antagonistic muscles.

BBL2: Human reproduction

1. Identify and describe the functions of the main parts of the male reproductive system to include the; penis, testes, glands, sperm duct, scrotum and urethra.
2. The testes are organs that produce and develop sperm to maturity and produce the male sex hormone.
3. Identify and describe the parts of the female reproduction system to include the: vagina, cervix, uterus, oviduct, and ovaries.
4. The uterus is a muscular sack that protects the growing foetus.
5. The ovary is the organ that produces and develops the ova (egg cells) and some of the female sex hormones.
6. The menstrual cycle takes about 28 days
7. The menstrual cycle starts during puberty and prepares the female for pregnancy.
8. Fertilisation is the fusing of two gametes following sexual intercourse: an ovum and a sperm
9. On average, it takes 40 weeks for a baby to grow fully from fertilisation.
10. The foetus is connected to the mother through the umbilical cord and the placenta.
11. The placenta provides the foetus with nutrients and oxygen to grow, while getting rid of waste.

THB7: The breathing system

1. The trachea is the organ that runs down the neck and carries air from the mouth and nose to the lungs.
2. Identify the trachea, bronchi, bronchioles, alveoli, diaphragm, ribs and intercostal muscles on a diagram of the breathing system.
3. At the end of all the air tubes are microscopic air sacs called alveoli (singular alveolus) which have thin walls and a high blood supply for diffusion of gases.
4. Diffusion is the movement of molecules from an area of high concentration to an area of low concentration down a concentration gradient – often across a membrane.
5. In the alveoli, Carbon Dioxide diffuses from the blood to the air in the alveoli and oxygen diffuses from the air in the alveoli to the blood.

6. To breathe in (inhale), we make the chest cavity bigger by contracting the diaphragm to move it down, and contracting the muscles between the ribs, moving the rib cage out.
7. When we make the chest cavity bigger, the air pressure in the lungs decreases and air flows into the lungs.
8. To breathe out (exhale), we make the chest cavity smaller by relaxing the diaphragm to move it up, and relaxing the muscles between the ribs, moving the rib cage in.
9. When we make the chest cavity smaller, the air pressure in the lungs increases and air flows out of the lungs.
10. The maximum amount of air you can breathe in and out is your vital lung capacity.

THB8: Healthy living

1. A unicellular organism is a living thing made up of one cell only.
2. Label and describe the key parts of a bacterium including: DNA, Cytoplasm, Cell Wall, Cell Membrane, Plasmid.
3. Recall that bacteria, protozoa and unicellular fungi are all types of unicellular organisms and that some are pathogens that make us ill.
4. Define a drug as a chemical that causes changes in our body.
5. Recall that drugs can be medicinal or recreational and that many recreational drugs are illegal.
6. Exercise increases the demand on the breathing system – more oxygen is needed, and more carbon dioxide is produced.
7. Asthma is a condition that makes it harder for someone to get air into their lungs.
8. Smoking is a risk factor that can lead to lung disease, heart disease and some cancers.
9. A pregnant mothers use of recreational drugs, smoking and drinking alcohol can affect the growth of a foetus.

Chemistry

BOM5: The particle model

1. Particles in particle diagrams are represented as spheres but they may not be spherical in shape.
2. Atoms and molecules are very small particles.
3. The density of a substance is how much matter is in a specific volume.
4. Solids are arranged in a regular pattern. Liquids are not.
5. Solid particles vibrate in their positions but cannot move around.
6. Materials in the solid or liquid states are incompressible as the particles are very closely packed together.
7. Solid ice is less than dense than liquid water. Ice floating on water is an anomaly.
8. Substances in the gas state are less dense than the solid and liquid states.
9. Gases are fairly easy to compress as most of the particles are far from each other.
10. Substances in the gas state spread out to fill the whole space they are in.
11. Gaseous particles move around rapidly in all directions and most of the particles are too far apart to exert any force on each other.
12. A chemical change is when the atoms within a particle are rearranged to form a new product

BOM6: The atom

1. John Dalton suggested that atoms are spherical and have a definitive size and mass.
2. An element is a made of one type of atom only which has the same size and mass.
3. A molecule is when two or more atoms are chemically combined.
4. A compound is a particle that contains two or more different elements that are chemically combined.
5. Substances have different properties because of the elements they contain.
6. A compound has a fixed melting and boiling point (Water - 0°C / 100°C).
7. Each element is represented by an assigned name and symbol. (H, O, C, S, Cl, Mg, Na, Fe, Cu)
8. The names and quantities of atoms in a chemical compound can be derived from its formula. (H_2O, O_2, H_2, CO_2, NaCl, MgO)

9. The following chemical symbols of elements can be used to create chemical formula. (H, O, C, Cl, Mg, Na, Fe, S, Cu)
10. Write chemical formula based on the number of each atom for the following elements and compounds (H_2O, O_2, H_2, CO_2, MgO, NaCl, FeS)
11. Atoms are not created or destroyed during chemical reactions they are rearranged to form new products.
12. Word equations can be used to represent reactants and products in a chemical reaction (Iron + Sulphur → Iron Sulphide) and (Carbon + Oxygen → Carbon Dioxide)

BOM7: Changes of state

1. Physical changes are reversible.
2. Mass is conserved during physical changes as atoms are not rearranged in physical changes and do not form new products.
3. The chemical formula of steam, liquid water and ice is H_2O.
4. The volume of a liquid can be determined using a measuring cylinder.
5. Solids will sink and displace liquids if they have a higher density.
6. The volume of a solid can be determined using a Eureka can and a measuring cylinder.
7. The volume of a gas can be determined using an inverted liquid-filled measuring cylinder.
8. Gases occupy a greater volume than liquids and solids.
9. The mass of a solute (e.g. salt/sodium chloride) is conserved when it is dissolved into a solvent (e.g. water). This makes a solution.
10. The particles in a soluble solid can move freely once they are dissolved.
11. Concentration is the number of particles in a given volume. Dilute and concentrated are used to describe concentration.
12. Brownian motion is the random motion of particles and/or collisions with other moving particles.
13. All particles are in constant motion.
14. Diffusion occurs in liquids and gases as the particles can move freely.
15. Diffusion is the net movement of particles from an area of high concentration to an area of low concentration.

CR3: Types of reactions

1. Reactants are the starting substance(s) in a chemical reaction. Products are the substance(s) that is made in a chemical reaction.
2. A chemical reaction is represented by an arrow between the reactants and the products, and they are often not reversible.
3. Observations during chemical reactions can include but are not limited to change of state (leading to a measurable change of mass), change in colour.
4. Combustion is the burning of a substance in oxygen.
5. Combustion is an example of an irreversible change.
6. Fuel + Oxygen → Carbon Dioxide + Water (insert wood, petrol, diesel and carbon for fuel)
7. Lime water can be used to test for carbon dioxide.
8. Thermal decomposition is the chemical breakdown of a substance when it is heated.
9. Copper Carbonate → Copper Oxide + Carbon Dioxide.
10. Oxidation is the addition of oxygen in a chemical reaction.
11. Iron + Oxygen → Iron Oxide and Copper + Oxygen → Copper Oxide.
12. Displacement reactions are where a more reactive reactant takes the place of a less reactive reactant in a chemical compound.
13. Magnesium + copper chloride → magnesium chloride + copper.

OE3: The cycles

1. The Earth is almost a sphere and is made up of three main layers: the core, the mantle and the crust.

2. The Earth's crust is a thin layer (7-35km) and is less dense than the mantle beneath it; it is made up of a mixture of minerals.
3. There are three main types of rocks: igneous, sedimentary, and metamorphic.
4. Igneous rocks are formed by the cooling of liquid rock. Sedimentary rocks are formed by layers of transported rock being deposited and compacted over time.
5. Metamorphic rocks are formed when rocks undergo chemical changes due to heat and pressure.
6. Igneous and metamorphic rocks are crystalline and are often harder and more dense than sedimentary rocks.
7. Sedimentary rocks are granular.
8. There are two main bodies of water: salt water (which has a high concentration of dissolved salts) and fresh water (which has a low concentration of dissolved salts).
9. Water poverty is the lack of access to clean and safe drinking water contributing to poor health and sanitation issues.

Physics

OEOO4: Changing shape

1. The unit for force is Newtons
2. Forces act as pushes or pulls.
3. Forces act in pairs.
4. Some contact forces are tension, friction, air resistance, upthrust, thrust, normal reaction force.
5. Some non-contact forces are magnetic force, electrostatic force, gravitational force.
6. Forces can be represented using arrows. These arrows have both direction and magnitude.
7. When a force is exerted on a material, that material may be stretched or compressed.
8. Elastic materials will often return to their original shape when the force is removed.
9. When forces acting on an object are unbalanced, the objects motion, direction or shape may change.
10. Equilibrium describes when opposing forces are equal or balanced.

BE3: Astrophysics

1. A planet is a large, almost spherical object that orbits a star.
2. The inner planets are rocky planets; the outer planets are gas planets.
3. A moon is an object that orbits a planet or another celestial body that is not a star.
4. An asteroid is a small rock orbiting the sun.
5. A comet is a celestial object that is made of ice and dust.
6. A star is a luminous object - it produces its own light.
7. The Sun is the star at the centre of our solar system.
8. Gravity is the force keeping the planets orbiting the sun, and the moons orbiting the planets.
9. A galaxy is a system of millions or billions of stars, together with gas and dust.
10. Our galaxy is called the milky way.
11. Mass is a measure of the amount of matter an object or substance is comprised of.
12. Weight is the force needed to support an object or substance.
13. Weight of a stationary object can be calculated by multiplying the mass of an object by the gravitational field strength