

Year 8 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, focusing 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.

BBL3: Cellular respiration

1. Respiration mostly occurs in the mitochondria of cells.
 2. Aerobic respiration releases lots of energy and is the type of respiration that occurs in the presence of oxygen.
 3. Foods containing starch are broken down by enzymes to provide the glucose for respiration.
 4. Aerobic respiration can be summarised using the equation
- $\text{glucose} + \text{oxygen} \rightarrow \text{carbon dioxide} + \text{water}$.
5. Anaerobic respiration releases very little energy and is the type of respiration that occurs in the absence of oxygen.
 6. Fermentation is an example of anaerobic respiration that is used to make alcoholic beverages and bread.
 7. Anaerobic respiration in humans releases very little energy and produces lactic acid
 8. Fermentation in yeast releases very little energy and produces carbon dioxide and ethanol.
 9. A build-up of lactic acid damages muscles and causes cramps.

BBL4: Plant cells

1. Identify the location of the sub-cellular structures in plant cell diagrams, chloroplast, permanent vacuole and cell wall.
2. The function of the cell wall is to provide structure and support to the plant cell.
3. The chloroplast contains chlorophyll and is the site of photosynthesis.
4. The permanent vacuole is the part of the plant cell that stores the cell sap.
5. The flower is the reproductive organ of a plant.
6. The female part of the plant is called the carpel and is comprised of a stigma, style and ovary containing the ovum.
7. The male part of the plant is called the stamen and is comprised of a filament and an anther containing the pollen.
8. Pollen gets transferred from the anther to the stigma through wind or insect transfer.
9. The pollen fertilises the ovum, and this then develops into a seed.

10. Seeds can be dispersed by wind, explosion, animals, or water.

THB9: The digestive system

1. Carbohydrates are the main source of energy in our diet.
2. Lipids (fats and oils) are needed for energy, insulation and to make the membranes of cells.
3. Proteins are needed to help us grow and repair parts of our body.
4. Vitamins and Minerals are needed to life process and to keep the body healthy.
5. Dietary fibre is needed to keep food moving through the digestive system – keeping it healthy
6. Water is needed for reactions to take place in the body.
7. Chemicals called reagents can indicate the presence of a specific food substance when they change colour.
8. In general, man need more energy in their diet (2500 kcal) than women (2000 kcal).
9. Your lifestyle and where you live will have an impact on how much energy you need in your diet.
10. Obesity is a condition where someone has a high excess of body fat and can lead to type 2 diabetes.
11. Malnutrition is a condition where someone is not getting the right balance of nutrients, they need to be healthy.
12. Teeth are used to break up food into smaller pieces for digestion.
13. The oesophagus is the tube that carries the food from the moth to the stomach.
14. The stomach contains acid that kills bacteria, and churns food to make it smaller.
15. The small and large intestine is where nutrients and water are absorbed into the blood stream.
16. Enzymes are chemicals that break down food into smaller pieces to aid digestion.
17. Gut bacteria are present in the large intestine and help break down some food substances the body is unable to break down

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

BOM8: Purity

1. Pure substances can be identified from their melting and boiling point.
2. Pure water boils at 100°C, and freezes at 0°C
 - Air is an example of a mixture,
 - A mixture is a substance that contains two or more elements or compounds that are not chemically combined and are not in fixed proportions.
3. Funnels and filter paper can be used to separate solids from fluids this process is called filtration.
4. Dissolved solids can be obtained from liquids using evaporation.
5. Sodium Chloride is the chemical name for table salt
6. Most crystals (for example, salt) are formed from as a result of evaporation.
7. Liquids can be separated from other liquids using distillation.
8. During distillation a liquid is heated, to form a vapour, the vapour is then cooled using a condenser.

CR4: The pH scale

1. All substances can be classified as being acidic, basic or neutral.
2. Indicators are used to identify the acidity of a substance (In universal indicator acids are red, alkalis are purple and neutral is green) / (red or blue litmus paper).
3. Three acids are ethanoic acid (vinegar), hydrochloric acid (stomach acid) and sulphuric acid and three alkalis are ammonia, sodium hydroxide (drain cleaner) and bleach.
4. The pH scale shows how acidic a substance is, it can be measured to give a numerical value and ranges from 0 (very acidic) through 7 (neutral) to 14 (very alkaline).
5. An alkali is a soluble base.
6. An acid and alkali will chemically react to produce a salt and water. This is called a neutralisation reaction.
7. The name of the salt produced can be worked out from the names of the acid and the alkali. E.g. sodium hydroxide and hydrochloric acid → sodium chloride + water.
8. Acids chemically react with most metals and will form a salt and hydrogen.
9. Hydrogen makes a characteristic squeaky pop when ignited.
10. When a chemical reaction happens, energy is transferred to or from the surroundings. (When energy is transferred to the surroundings, this is called an exothermic reaction / When energy is taken in from the surroundings, this is called an endothermic)
11. When a substance changes state, energy is transferred to or from the surroundings. (See exo/endo above)

Physics

OE004: 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.

OE006: Forces and motion

1. A journey can be represented on a distance-time graph.
2. Distance is measured in metres, m.
3. Time is measured in seconds, s.
4. The greater an objects speed, the greater the distance travelled within a set time.
5. Speed is measured in metres per second, m/s.
6. The gradient of the line on a distance-time graph is the speed of the object.
7. When two objects are travelling in the same direction, the relative motion of those objects can be determined.
8. An objects speed or direction changes when forces acting upon it are unbalanced.
9. An objects speed or direction remains constant when forces acting upon it are balanced.

BOE10: The principles of energy

1. The unit measure for energy is Joules, J
2. Changes in energy stores can be described.
3. A system is an object or group of objects.
4. In closed system the total amount of energy never changes – energy is conserved.
5. The universe is a closed system.
6. Chemical, gravitational, kinetic, thermal, and elastic are examples of stores.

7. There are 4 pathways: Heating by particles, Work (mechanical), electrical working and heating by radiation.
8. Some energy changes are unwanted or wasted.
9. Unwanted energy changes can be reduced through lubrication or Insulation.
10. Lubrication is the use of a material to reduce friction between two objects.