

Year 7 Sequence of Learning (SoL)

Biology

Chapter 1: Cells				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s) One main objective and sub objectives	Key Words/ Concepts	Homework
1	Classroom Expectations			
2	Lesson 1.1 – Observing cells	- Give the definition of a cell - Cells are the building blocks of life and are the smallest units found in an organism. - Describe how to use a microscope to observe very small objects - Calculate the total magnification used to observe an object	cell, microscope, observation	
3	Lesson 1.2 – Plant and animal cells	- Describe the function of each part of a cell - Compare the parts of plant and animal cells – Plant only: Chloroplast, cell wall, vacuole. Animal and plant: mitochondria, cell membrane, cytoplasm, nucleus. - Use a microscope to view plant and animal cells	cell membrane, cell wall, chloroplast, cytoplasm, mitochondria, Nucleus vacuole, leaf cell	
4	Lesson 1.3 – Specialised cells	- Describe the functions of specialised cells - Describe the adaptations of specialised animal cells - Describe the adaptations of specialised plant cells	red blood cell, root hair cell, sperm cell, egg cell, nerve cell, specialised cell, adaptations (cell)	
5	Lesson 1.4 – Movement of substances	- Name some substances that move into cells and out of cells - Describe the process of diffusion - Describe examples of diffusion	diffusion, concentration, respiration	
6	Lesson 1.5 – Unicellular organisms	- Give the definition of a unicellular organism - Describe the features of an amoeba - Describe the features of a euglena	unicellular, amoeba, binary fission, euglena, flagellum, organism	Core questions HW sheet
7	REVISION LESSON			
8	ASSESSMENT LESSON			
9	FEEDBACK LESSON			

Chapter 2: Structure and function of body systems				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 2.1 – Levels of organisation	- Give the definitions of tissue, organ, and organ system - Describe the hierarchy of organisation in a multicellular organism	multicellular organism, organ, organ system, tissue	
2	Lesson 2.2 – Gas exchange	- Give the definition of the process of gas exchange - Describe how parts of the gas exchange system are adapted to their function - Compare the composition of inhaled and exhaled air	alveolus, gas exchange, gas exchange system, lungs	
3	Lesson 2.3 – Breathing	- Describe the changes that occur when a person inhales and exhales - Describe how a bell jar can be used to model breathing - Describe a method used to estimate lung volume	asthma, diaphragm (breathing), exhale, inhale, lung volume, trachea	
4	Lesson 2.4 – Skeleton	- Label the main bones in the human skeleton - Describe the structure of a bone	bone, bone marrow, cartilage, ribcage, skeleton	

		Describe the functions of the skeletal system		
5	Lesson 2.5 – Movement joints	- Describe the role of joints in movement - Describe the structure of a joint - Describe how to measure the force exerted by different muscles	antagonistic muscles, biomechanics, ligament, tendon	
6	Lesson 2.6 – Movement: muscles	- Describe the function of the major muscle groups - Describe how muscles cause movement in the body - Describe how antagonistic muscles control movement at a joint	antagonistic muscles, musculoskeletal system	Core questions HW sheet
7	REVISION LESSON			
8	ASSESSMENT LESSON			
9	FEEDBACK LESSON			

Chapter 3: Reproduction				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 3.1 – Adolescence	- Describe the difference between adolescence and puberty - Compare the physical changes in males and females during puberty	adolescence, puberty, sex hormones	
2	Lesson 3.2 – Reproductive systems	- Describe the biological function of the female and male reproductive systems - Label the main structures in the female and male reproductive systems - Describe the biological function of the main structures in the female and male reproductive systems	cervix, penis, scrotum, sperm duct, testes, urethra, uterus, vagina	
3	Lesson 3.3 – Fertilisation and implantation	- Describe the process of fertilisation - Describe what happens during sexual intercourse - Describe the main steps which must take place for implantation to occur	ejaculation, embryo, fertilisation, gametes, implantation, oviduct, ovulation, sexual intercourse	
4	Lesson 3.4 – Development of a foetus	- Give the definition of gestation - Describe the function of the placenta, umbilical cord, and fluid sac - Describe the main stages in the process of birth	foetus, fluid sac, gestation, placenta, umbilical cord	
5	Lesson 3.5 – The menstrual cycle	- Describe what happens during a period - Describe the main stages in the menstrual cycle - Describe some different methods of contraception	menstrual cycle, ovary (human), period, condom, contraception, contraceptive pill	Core questions HW sheet
6	Lesson 3.6 – Flowers and pollination	- Describe the function of the main structures in a flower - Describe the process of pollination - Compare the structure of wind-pollinated and insect-pollinated plants	anther, carpel, filament, ovary (plant), ovule, petal, pollen, pollination, sepal, stamen, stigma, style	
7	Lesson 3.7 – Fertilisation and implantation	- Describe the process of fertilisation in plants - Describe how seeds and fruits are formed - Describe the main steps in germination	Fruit, germination	
8	Lesson 3.8 – Seed dispersal	- Describe the advantages of seed dispersal - Explain how seeds are adapted for their method of dispersal - Describe a method to investigate seed dispersal	Seed, seed dispersal	Core questions HW sheet
9	REVISION LESSON			HW due: Core questions HW sheet
10	ASSESSMENT LESSON			
11	FEEDBACK LESSON			

Chemistry

Chapter 1: Particles and their behaviour				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 1.1 – The particle model	- Use the particle model to explain why different substances have different properties. - State the factors in the particle model that determine the properties of a substance.	Particle, particle model	Science literacy Homework
2	Lesson 1.2 – States of matter	Compare the properties of a substance in its three states.	gas, liquid, solid, states of matter	

		- Describe the arrangement, separation, and movement of particles in the three states of matter - Use the particle model to explain the properties of a substance in its three states.		
3	Lesson 1.3 – Density	- Give the definitions of mass, volume, and density. - Use the particle model to explain why the same substance has different densities in each of its three states. - Use the particle model to explain why, in the solid state, different substances have different densities.	density, mass, volume	
4	Lesson 1.4 – Melting and freezing	- Describe how the arrangement, separation, and movement of the particles change when a substance melts or freezes. - Give the factor in the particle model that explains why different substances have different melting points. - Estimate the melting point of a substance from its temperature–time graph. – The melting point will be the flat part of the temperature– time graph	freezing, melting, melting point, change of state	
5	Lesson 1.5 – Boiling	- Describe how the arrangement, separation, and movement of the particles change when a substance boils. - Predict the state of a substance at a given temperature from its melting and boiling points, where both are above 0 °C. - Estimate the boiling point of a substance from its temperature– time graph. –	boiling, boiling point, evaporation	
6	Lesson 1.6 – More changes of state	- Compare evaporating, condensing, and subliming in terms of their before and after states. - Describe how the arrangement, separation, and movement of the particles change when a substance evaporates, condenses, and sublimes. - Compare the changes in the arrangement, separation, and movement of the particles in evaporation and boiling.	condensing, reversible, sublimation	Core questions HW sheet
7	Lesson 1.7 – Diffusion	- Describe how (if at all) the separation and speed of movement of the particles change when a substance diffuses. - Use the particle model to explain how temperature, particle size, and state affect how quickly diffusion happens. - Use the particle model to explain the observations in an experiment that demonstrates diffusion	Concentration, diffusion	
8	REVISION LESSON			
9	ASSESSMENT LESSON			
10	FEEDBACK LESSON			

Chapter 2: Elements, atoms, and compounds				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 2.1 – Elements	- Give the definition of an element and list some examples of elements. - Describe what is shown in the Periodic Table. - Use the Periodic Table to find the chemical symbol of any element, given its name.	element, chemical symbol, Periodic Table	Science literacy Homework
2	Lesson 2.2 – Atoms	Give the definitions of an atom and an element (in terms of its atoms).	atom	
3	Lesson 2.3 – Compounds	- Give the definition of a compound - Explain whether a molecule diagram shows an element or a compound. - Explain why a compound has different properties to the elements whose atoms are in it	Compound, molecule	
4	Lesson 2.4 – Chemical Formulae	- Name a two-element compound, given its particle diagram or the relative numbers of atoms of each element. - Give the chemical formula of a compound, given the relative numbers of atoms of the elements in it. - Give the chemical formula of a compound, given a labelled molecule diagram.	chemical formula, relative number	Core questions HW sheet
5	REVISION LESSON			
6	ASSESSMENT LESSON			

7	FEEDBACK LESSON			
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Chapter 3: Reactions				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 3.1 – Chemical reactions	- Explain how chemical reactions are useful. - Compare chemical reactions to physical changes. – Phys	chemical reaction, combustion reaction. physical change	Science literacy Homework
2	Lesson 3.2 – Word equations	- Identify reactants and products in word equations. - Write word equations for chemical reactions, given the reactants and products. - Given a particle diagram for a chemical reaction involving molecules, explain how the atoms are rearranged and join together differently.	balanced formula equation	
3	Lesson 3.3 – Oxidation reactions	- Give the definitions of combustion reaction and oxidation reaction. - Write word equations for oxidation reactions, given the reactants and products. - Predict the products of combustion of fuels. – Carbon dioxide	oxidation reaction, fossil fuel, fuel non-renewable	
4	Lesson 3.4 – Decomposition reactions	- Give the definition of a decomposition reaction. - Write word equations for decomposition reactions, given the reactants and products. - Using data presented in a table or bar chart, identify the substance that starts to decompose first.	decomposition	
5	Lesson 3.5 – Using ratios	Show information using ratios. – C:H:O as 6:12:6 in glucose. • Simplify ratios in chemical formulae and equations. – C:H:O as 1:2:1 in glucose. • Use ratios to calculate values in chemical formulae and equations	discrete	
6	Lesson 3.6 – Conservation of mass	- Explain why the total mass of reactants is equal to the total mass of products in a chemical reaction. - Calculate the mass of one reactant or product in a chemical reaction, given the masses of all other reactants and products. - Describe what a balanced formula equation shows.	conservation of mass	
7	Lesson 3.7 – Exothermic and endothermic reactions	- Describe the energy changes in exothermic and endothermic changes. - Predict whether a given change is exothermic or endothermic. - Identify endothermic and exothermic changes from temperature data.	endothermic change, exothermic change	Core questions HW sheet
8	REVISION LESSON			
9	ASSESSMENT LESSON			
10	FEEDBACK LESSON			

Chapter 4: Acids and alkalis				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 4.1 – Acids and alkalis	- Use the particle model to describe differences between concentrated and dilute solutions. - Describe the hazards linked to using laboratory acids and alkalis and how to control the risks from hazards.	Acid, alkali, base, concentrated, corrosive, dilute, neutral	Science literacy Homework
2	Lesson 4.2 – Indicators and pH	- Given the colour change on adding indicator, determine whether a solution is acidic or alkaline. - Identify acids, alkalis, and neutral solutions on the pH scale. - Use universal indicator to measure the pH of a solution.	Indicator, litmus, pH scale, universal indicator	
3	Lesson 4.3 – Neutralisation	- Give the definitions of base and alkali. - Describe how pH changes in neutralisation reactions. - Give examples of useful neutralisation reactions.	neutralisation	Core questions HW sheet
4	Lesson 4.4 – Making salts	- Give the definition of a salt. - Predict the salts that form when acids react with metals or bases. - Describe how to make a salt from an acid and a metal or insoluble base.	salt	
5	REVISION LESSON			
6	ASSESSMENT LESSON			

7	FEEDBACK LESSON			
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Physics

Chapter 1: Forces				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 1.1 – Introduction to Forces	- Use force arrows to explain how forces arise. - Compare everyday contact and non-contact forces. - Describe how to measure forces and give the unit of force.	force, driving force, interaction pair, pull, push, newton (N), newtonmeter	Science literacy Homework
2	Lesson 1.2 – Squashing and stretching	- Describe how forces deform objects. - Explain how solid surfaces provide a support force. - Apply Hooke's Law.	compress, deform, elastic limit, extension, Hooke's Law, stretch, tension	
3	Lesson 1.3 – Drag forces and friction	- Describe the effects of drag forces and friction. - Explain how drag forces and friction arise. - Describe how drag forces and friction can be reduced.	air resistance, drag, friction, lubrication, resistive force, streamlined, water resistance	
4	Lesson 1.4 – Forces at a distance	- Describe the effects of gravitational, magnetic, and electric fields - Describe the difference between weight and mass - Calculate weight using $W = mg$ on the Earth, planets, and the Moon	electrostatic force, gravitational field strength, gravity, magnetic force, non-contact force	Core questions HW sheet
5	Lesson 1.5 – Balanced and unbalanced	- Describe the difference between balanced and unbalanced forces. - Explain why an object is in equilibrium. - Explain the changing motion of objects.	balanced, equilibrium, unbalanced, reaction	
6	REVISION LESSON			
7	ASSESSMENT LESSON			
8	FEEDBACK LESSON			

Chapter 2: Sound				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 2.1 – Waves	- Describe the different types of waves and their features. - Describe what happens when water waves hit a barrier. - Describe what happens when waves superpose	amplitude, crest, frequency, hertz, incident wave, longitudinal, medium, oscillation, peak, reflected wave, reflection, superpose, transverse, trough, undulation, wavelength	Science literacy Homework
2	Lesson 2.2 – Sound	- Describe how a sound is produced and travels - Use the particle model to explain why the speed of sound is different in different materials	amplify, compression, energy, infrasound, kilohertz, loudness, pitch, rarefaction, speed of sound, vibration	
3	Lesson 2.3 – Loudness and pitch	- Describe the link between loudness and amplitude of sound waves - Describe the link between frequency and pitch of sound waves	amplitude, decibel, frequency, hertz, kilohertz, loudness, pitch	
4	Lesson 2.4 – Detecting sound	- Describe how the ear works. - Compare the range of human hearing with different animals. - Describe how a simple microphone works.	audible range, auditory canal, auditory nerve, cochlea, diaphragm, ear, eardrum, inner ear, microphone, middle ear, oscilloscope, ossicles, outer ear, oval window, pinna, receiver, semi-circular canal	Core questions HW sheet
5	Lesson 2.5 – Echoes and ultrasound	- Compare sound and ultrasound - Explain how echoes are used to find distance - Describe uses of ultrasound to make images and find distances	echo, sonar, speed of sound, ultrasound	
6	REVISION LESSON			
7	ASSESSMENT LESSON			
8	FEEDBACK LESSON			

Chapter 3: Light				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 3.1 – Light	- Describe how light is emitted, travels, and is detected, or absorbed. - Describe what happens when light interacts with matter. - Describe how the speed of light is used to define distance.	absorb, emit, luminous, non-luminous, light-time, medium, opaque, source, transparent, translucent, transmit	Science literacy Homework
2	Lesson 3.2 – Reflection	- Describe what happens when light is reflected. - Use the law of reflection to explain how images are formed in a plane mirror. - Describe the difference between specular reflection and diffuse scattering.	angle of incidence, angle of reflection, diffuse scattering, incident ray, law of reflection, normal, plane, reflect, reflected ray, specular reflection	
3	Lesson 3.3 – Refraction	- Describe what happens when light is refracted. - Explain what happens when light is refracted. - Describe how a convex lens affects light.	converging, convex, dispersion, focal point, focus, inverted, lens, prism, ray, refraction	
4	Lesson 3.4 – The eye and the camera	- Describe how the eye works. - Compare a simple camera with the eye.	aperture, camera, charge-coupled device (CCD), cornea, eye, filter, image, iris, optic nerve, photoreceptors, pixel, pupil, real (image), retina, virtual	Core questions HW sheet
5	Lesson 3.5 – Colour	- Describe and explain what happens when light passes through a prism - Describe how primary colours add to make secondary colours - Explain the effect of filters and coloured materials on light	prism, spectrum, dispersion, primary/secondary colour, filter	
6	REVISION LESSON			
7	ASSESSMENT LESSON			
8	FEEDBACK LESSON			

Chapter 4: Space				
Lesson Number	Key Question/ Lesson Title	Learning Objective(s)	Key Words/ Concepts	Homework
1	Lesson 4.1 – The night sky	- Describe the objects that you can see in the night sky with the naked eye and with a telescope. - Describe the structure of the Universe of the Universe consists of billions of galaxies and each galaxy is made of a billion stars.	astronomer, constellation, galaxy, Milky Way, star, Universe	Science literacy Homework
2	Lesson 4.2 – The Solar System	- Compare the planets of the Solar System. - Describe how the Solar System formed.	artificial satellite, asteroid, asteroid belt, comet, dwarf planet, gas giant, natural satellite, Solar System, terrestrial	
3	Lesson 4.3 – The Earth	- Explain the apparent motion of the Sun and other objects in the sky. - Describe and explain seasonal changes in the UK. - Describe seasonal changes in different places on Earth.	axis, ellipse, hemisphere, night, season	Core questions HW sheet
4	Lesson 4.4 - The moon	- Describe the phases of the Moon. - Explain why you see the phases of the Moon. - Explain why you see lunar and solar eclipses.	lunar eclipse, meteor, meteorite, Moon, partial solar eclipse, penumbra, phases of the Moon, total solar eclipse, umbra	
5	REVISION LESSON			
6	ASSESSMENT LESSON			
7	FEEDBACK LESSON			