YEAR 1

Theme	Lesson	Learning objectives
Engaging in Science practicals/ KS2 Review	L1 - Introduction to Lab safety	As per 5 year plan
	L2 - Bunsen burner safety use	As per 5 year plan
	L3 - Using equipment	As per 5 year plan
	L4 - Review of KS2 - intro to learning journey	As per 5 year plan
	Revision lesson & Catch up	As per 5 year plan
	Baseline Test - digital in IT room	As per 5 year plan
Topic 1 - Particle Model	L1 - Properties of states of matter	Compare different materials and identify whether they are solid liquid or gas Draw particle diagrams of the three states of matter Invesitgate the properties of the three states of matter
	L2 - Changes of state	Observe some materials change state when they are heated or cooled Identify the names of the different changes of state Describe what happend to the particles when they change state
	L3 - Melting and freezing	Observe some materials change state when they are heated or cooled Identify the names of the different changes of state when a solid turns to a liquid and vice versa Describe what happend to the particles when they change state
	L4 - Boiling and evaporating	Observe some materials change state when they are heated or cooled Identify the when a liquid turns to a gas and vice versa Describe what happend to the particles when they change state
	L5 - Physical and chemical changes	Identify that some sollids dissolve in liquids to form a solution Explain thaat some reactions are reverisble (Physical change) and some are irreversible Chemical change) Explain that a chemical reaction can result in new materials being made eg burning
Topic 2 - Cells	L1 - What is the body made up of?	Label the main organs in the body Define the terms cell, tissue, organ and organ systems and give examples
	L2 - The World of cells through the microscope	Label a microscope View a prepared slide
	L3 - Looking through our own cells	Prepare my own microscope slide Describe how you used a micrscope to view onion cells
	L4 - The inside of cells	Label a plant cell Label an animal cell
	L5 - All sorts of cells	List different examples of plant and animal cells Describe the components of different specilised cells
	L6 - Unicellular organisms	State what a unicellular organism is Describe the structure of an amoeba
	L7 - Diffusion in cells	Describe the process of diffusion Name the substances that move in and out of cells

Topic 3 - What do Forces do?	L1 - What is a Force?	Define a force Describe that some forces need to be contact forces and some like magents need to be non contact forces List the contact and non contact forces
	L2 - Measuring Speed	Recall the speed equation Identify the equipment that measure distance and time Calculate speed using distance and time
	L3 - Resultant Forces	Describe how the shapes of objects can be made from some materials by squashing, bending and twisting Draw free body diagrams to show forces acting on an object Calculate the resultant force
	L4 - Forces Acting on a Parachutist	Explain how unsupported objects fall towards Earth (Gravity) Identify the effects of air resistance, water resistance and friction on a moving surface Label the forces on a sky diver
	L5 and L6 - Harnessing the Air - Egg Drop Challenge	Design a parachute for your egg Explain how the design will allow an object
		Work as a team to scramble together your parachute. Test your parachutes – will your egg survive the drop? Evaluate the design and performance of the parachute.
Topic 4 - Structure and History of the Atom	L1 - The atom	State that all things are made of atoms Draw and label an atom
	L2 - Model of the atom	Create a 3D model of an atom State the limitations of models in chemistry
	L3 - Sub-atomic particles	Name each subatomic particle name the mass and charge of each subatomic particle
	L4 - Development of the atom Part 1	Create a timeline of how the idea of the atom has changed over time Draw and label the plm pudding model
	L5 - Development of the atom Part 2	Compare the different models of the atom
Topic 5 - Organ Systems	L1 - Organs in the human body	Name the organs in the human body Identify which organs are part of which systems Identify which muscles and bones are needed for movement
	L2 - Cellular respiration	State what respiration is and where is occurs in the cell Recall the word equation for respiration Explain why respiration is important and how it provides energy for cells
	L3 - Respiratory system	Label the respiratory system Describe its function and how it is adapted to carry out gas exchange
	L4 - Circulatory system	Identify parts of the curculatory system Label the heart Describe how blood flows around the body and that nutrients and water are carried to you cells
	L5 - Healthy Diet (Nutrients)	Describe the basic needs of humans (Eg food, water and air) State the componenets of a healthy diet Describe the importance of exercise and eating the right types of food and recognise the impact that diet, exercise drugs and lifestyle have oon the body
	L6 - Digestive system	Label the digestive system Describe the function of different parts of the digestive system
	L7 - Skeletal system	Identify which muscles and bones are needed for movement Label the key bones and muscle groups in your body Describe how bones and muscles work together to bring movement

Topic 6 - Our Solar System	L1 - What is the Universe Made Up Of?	Describe the key objects in our solar system (eg Sun, planets, moons) Describe the structure of the solar system Explain how gravity dictates the motion of stars, planets, moons and galaxies
	L2 - The Solar System	Describe how the planets rotate around the sun Describe the movement of the moon around the Earth Name the 8 planets Describe how the solar system was formed
	L3 - Weight	Explain how unsupported objects fall towards Earth (Gravity) Define mass and Weight Explain how your weight can vary from planet to planet based on the graviational field strength of that planet Calculate weight
	L4 - Day and Night and The Seasons	Use the idea of the the Earth spinning on its axis gives us day and night Exaplin how the position of the Earth causes days, night and seasons
	L5 and L6 - Planets in Our Solar System	List the planets in order away from the sun Describe the movement of planets around the sun
		Describe some features of each planet in our solar system
Topic 7 - Elements, Compounds and Mixtures	L1 Elements, compounds, mixtures	Define Element, Compound and Molecule Identify diagrams of Elements, compounds and molecules Give examples of elements, compounds and molecules
	L2 Chemical symbols	Identify elemets from their chemcial symbols Identify how many elements are in a compound by using chemcial formula Use given information to write chemcial formula for compounds
	L3 Pure substances	Define a pure substance and a mixture Identify them using diagrams Show how to compare pure and mixtures using boiling points
	L4 Solutions	Define Solvent, Solute, Solution, Soluble, Insoluble, Dissolved Describe how a solution is formed Identify a solution from a diagram
	L5 Separating mixtures	Name the different separtion techniques Select the appropraite technique for a mixtureObtain salt from Rock salt
Topic 8 - Pandemic STEM project	L1 Infectious diseases - an introduction	
	L2 Slowing diseases - aseptic techniques	
	L3 Slowing diseases - use of face masks vs visor (STEM project)	
	L4 Slowing diseases - use of face masks vs visor (STEM project)	
	L5 Vaccines - Evaluating the benefits of vaccines	

Topic 9 - States of Matter	L1 - States of Matter	Identfity the three states of matter Compare different materials to identify if they are a solid, liquid or gas Investigate the properties of the three states of matter
	L2 - Change of State	Observe some materials change state when they are heated and cooled Identify the diferent changes of state
	L3 - Chemical and Physical Changes	Identify that some sollids dissolve in liquids to form a solution Explain thaat some reactions are reverisble (Physical change) and some are irreversible Chemical change) Explain that a chemical reaction can result in new materials being made eg burning
	L4 - Diffusion	Define diffusion Explain how diffusion happens in gases using particle theory
Topic 10 -The Periodic Table	L1- Classify substances	Identify the suitability of everyday materials in their uses eg wood, plastic . metal, glass etc Define the term properties Describe and group substances based on their properties
	L2- Metals and non-metals	List the properties of metals and non metals Relate the properties of metals and non metals
	L3- Periodic table	Label the periodic table with groups, periods, metals and non metals Describe how the periodic table is organised suggest how Mendeleev organised his table
	L4- Predictions using the periodic table	Match Scientists with their version of the periodic table Describe how the periodic table has changed over time and why Mendeleevs table was accepted
Topic 11 - Photosynthesis	L1 Organisation in plants	Label parts of a leaf Label a palisade cell Explain ho a leaf is adapted for its function
	L2 Photosynthesis	Define photosynthesis Describe the importance of photosynthesis Explain how a leaf is adapted for photosynthesis
	L3 Testing a leaf for starch	Describe how a plant stores glucose as starch Test a leaf for starch and give the positive resullt
Assessment week	Assessment	Assessment
	Feedback	Feedback
	Reteach	Reteach
Science STEM week	**STEM Project 1**	**STEM Project 1**
	STEM Project 1	**STEM Project 1**
	Science STEM Trip	**Science STEM Trip**
Topic 11 - Photosynthesis	L4 Effect of light on cress seedlings (Part 1)	
	L4 Effect of light on cress seedlings (Part 2)	
	L5 Greenhouse project (Part 1)	
	L5 Greenhouse project (Part 2)	
Topic 12 - Energy Transfer	L1 - Types of Energy	List the type of energy stores and give an example of each Recall that energy cannot be created or destroyed
	L2 - Energy Transfers	Know that energy can be transffered from one store to another Give examples of energy transfer Explain where wasted energy goes
Easter Break		

Topic 12 Energy	L3 - Energy Transfer Through Solids	Know that energy moves from 'warmer' to 'cooler' areas. Describe how energy moves through a solid by conduction. Investigate which material conducts heat the best.
	L4 - Effiency	Define efficiency Recognise useful and wasted energy transfers Calculate efficiency
	L5 and L6 Efiiciency Investigation	Name some factors which may affect how high a ball bounces when dropped from a certain height. Write a hypothesis for which ball will bounce the highest. Design an experiment to investigate the efficiency of different types of balls. Consider the accuracy of the results you would get. How could this be improved?
	L5 and L6 Efiiciency Investigation	
Topic 13 Conservation of mass	L1 - Understanding chemical formula	Name the elements present in a compound Calculate the formula mass of basic compounds
	L2- The law of conservation of mass	State that no atoms are made or loss during a chemical reaction Describe the law using chemical formula
	L4- What happened to the mass-Part 1	Identify the appropriarte equipment to complete the practical Identify any hazards in the practical and how to reduce these Calculate the change in mass
	L5- What happened to the mass-Part 2	Write a method for the practical Conclude your results Evaluate your method
	L5- What happened to the mass-Part 3	State that not all reactions seem to follow the law Identify how losses of mass can happenIdenitfy how these losses can be minimised
Catch up week	Catch up	Catch up
	Catch up	Catch up
	Catch up	Catch up
Topic 14 - Light and Sound	L1 - Wave Fundamentals	Recall that waves transfer energy Draw and label a wave Describe the two types of wave longitudinal and transverse
	L2 - Reflection	Students need to recongise that we see objects because light bounces off objects Recognise that looking directly at the sun can be harmful to your eyes Recall that light waves can be reflected off surfaces, transmitted or absorbed
	L3 - Refraction	Recall that light travels in straight lines Define refraction Investigate how refraction occurs through a glass block
	L4 - Sound	Recall that sound waves are caused by vibrating objects Explain why sound can't be heard n space Recognise that sound travels through a medium to your ear
	L5 - THe Ear	Draw and label the Ear Recognise as you move further away from the sound source the sound decreases
	L5- Sound and Concentration	Plan and carry out an investigation to see if music affects concentration

Topic 15 Forensic Science	L1- How does science help to solve crime	Know that fingerprints are unique to individuals Describe how to obtain fingerprints Compare the different types of fingerprints
	L2- Filtration & evaporation	State that mixtures can be seperated Label a diagram of evaporation and filteration Describe how to carry out the 2 processes
	L3- Chromatography	Label a chromatography experiment Describe how the ink is separated Compare a known sample to an unknown
	L4 Chemical analysis	
	L5 Flame tests	Match the metal ions to their colours Describe the method for testing for ions Explain how masking may take place in the experiment
	L6 Presenting data to an audience	
Consolidation week		
Y7 Assessment Week		
Topic 16 - Electricity	L1 - Circuit Symbols and Complete Circuits	Draw and label the circuit symbols Draw simple circuit diagrams Identify common appliances that run on electricity
	L2 - Potential Difference, Current and Resistance	Define current, potenial difference and resistance Give the units of current and resistance Explain how the resistance of a component can affect how the current flow through a circuit
	L3 - Series and Parallel Circuits	Draw a series and a parallel circuit Explain what happens to current in a series and parallel circuit Explain how a switch has to be closed for the light bulb to be switched on Identify why the bulb lights up in a series circut
	L4 - Static Electricity	Describe how the transfer of electrons causes static electricity Explain how people can gt electric shocks off of a trampoline
Feedback and reteach	Feedback	Feedback
	Reteach	Reteach
Topic 17 Health	L1 Types of drugs	
	L2 Alcohol - effects on health	
	L3 Smoking - effects on health	
	L4 Cardiovascular diseases	
	L5 Cancer	
	L6 Unhealthy diet	