

The Priory School Long Term Plan: Science

Curriculum Intent: The over-riding aim is to prepare pupils for the experiences and challenges of life after school as they move into further education and the world of work.

Year 7

	<u>Term 1</u>	<u>Term 2</u>	<u>Term 3</u>	<u>Term 4</u>	<u>Term 5</u>	<u>Term 6</u>
<u>Topics</u>	Welcome to science	Electricity	Humans as organisms	Separating materials	Living things in their environment	Forces
<u>Knowledge and Skills</u>	<p>Knowledge...</p> <ul style="list-style-type: none"> Getting comfortable in the science lab Names of equipment, their place and use How to use special equipment e.g microscope and Bunsen burner correctly and safely Be able to label parts of equipment Be able to set up equipment independently or in pairs to be able to use to observe and experiment <p>Skills...</p> <ul style="list-style-type: none"> Handling equipment Confidence Safety in lab Following instructions Self confidence Group work and pair work Turn taking 	<p>Knowledge...</p> <ul style="list-style-type: none"> Students by the end of term will be able to identify everyday objects that use electricity, identify whether these use mains, batteries or both, connect a simple circuit and be able to draw this simple circuit in a science diagram for the first time. <p>Skills...</p> <ul style="list-style-type: none"> Pencil and ruler diagram drawing Sorting Labelling identifying Simple circuit experimentation 	<p>Knowledge...</p> <ul style="list-style-type: none"> Comparing living and non living and justifications as to why Naming external body parts Knowing our body has a Skelton and muscles Associate parts of the body with particular functions e.g. circulatory system of the heart, lungs breathing, digestive system Knowing these organs are an internal part of our body <p>Skills...</p> <ul style="list-style-type: none"> Group work Speaking skills Self confidence Participation in practical activities Seeing organ in real life Observation Touching Classifying 	<p>Knowledge...</p> <ul style="list-style-type: none"> Separate solids using different sizes of sieves. Explain how sieving works. Explain that some solids seem to "disappear" in water and some don't. & know that this "disappearing" is dissolving. Explain what dissolving means. Separate using filtering. Know that a solid which does not dissolve is insoluble. Explain how filtering works. <p>Skills...</p> <ul style="list-style-type: none"> Handling equipment, liquids and solids Mixing Sieving Dissolving Method following Instructions Independent working Group work Pair work 	<p>Knowledge...</p> <ul style="list-style-type: none"> Naming some plants and animals Predict what living things may be found in an environment Habitats- Describe the types of plants and animals they expect to find in a habitat Know that a habitat has particular features <p>Skills...</p> <ul style="list-style-type: none"> Outdoor working Clipboard use Sorting skills Classifying School trip in science – following, listening, exploring, walking, taking instruction, boundaries, behaviour 	<p>Knowledge...</p> <ul style="list-style-type: none"> Explore and observe different pushes and pulls. Describe movements as fast, slow, turn, go round Use vocabulary correctly to describe movement Describe how to make things speed up, slow down, stop or change direction. Identify movements as pushes and pulls Know that squeezing, bending, twisting and stretching are types of forces & can change the shape of objects Use the correct vocabulary when describing forces Explore magnetism, floating and sinking. <p>Skills...</p> <ul style="list-style-type: none"> Exploring Predicting Recording Describing Using key words correctly Pair work/group work

Year 8

	<u>Term 1</u>	<u>Term 2</u>	<u>Term 3</u>	<u>Term 4</u>	<u>Term 5</u>	<u>Term 6</u>
<u>Topics</u>	Welcome to science (this year due to Year 7s last year not working in science lab)	Rocks and weathering	Sounds and hearing	Plants	Earth and beyond	Acids and alkalis
<u>Knowledge and Skills</u>	<p>Knowledge... Relating previous knowledge of science topics to equipment in lab Getting comfortable in the science lab Names of equipment, their place and use How to use special equipment e.g microscope and Bunsen burner correctly and safely</p> <p>Skills... Handling equipment Confidence Safety in lab Following instructions Self confidence Group work and pair work Turn taking Predictions</p>	<p>Knowledge... Sort rocks and soils by their appearance and texture. Group rocks by how they were formed. Understand how sedimentary & igneous rocks were formed & to recognise examples of them. Know that metamorphic rocks were made when rocks were heated or squashed Know how acid rain affects rocks and why</p> <p>Skills... Sorting Grouping Classifying Justifying Describing Exploring Observing</p>	<p>Knowledge... Explore making and changing sounds. Identify some common sounds Identify common sounds and sound sources. Demonstrate how notes of different loudness and pitch can be produced. Explain the difference between pitch and volume Know that sound travels in all directions and through objects Know that sound has to enter the ear and ears are used to hear sound. Identify parts of an ear</p> <p>Skills... Instrument handling Making sounds vary Listening Identifying Creating Watching Drawing diagrams Following instruction Researching</p>	<p>Knowledge... Know that both light and water are important to a plant. Investigate the best place for growing a plant. Know the main parts of flowering plants and be able to recognise these parts on different plants Understand a simple life cycle. Find out the conditions for seed growth. Describe the effects of water, light and temperature on plant growth.</p> <p>Skills... Collecting Observing Predicting Recording Waiting/patience Monitoring and recognising changes</p>	<p>Knowledge... Draw simple pictures of the Earth, sun and moon. Indicate their relevant sizes. Know that the sun changes position. Use this to explain shadows and how they change in the day. Know the earth spins once every 24 hours. Know that the earth orbits the sun over 365 ¼ days. Explain time zones simply.</p> <p>Skills... Listening Comparing Shape Relative sizes Research work Outdoor learning – taking part Imagination Experience a space dome workshop experience.</p>	<p>Knowledge... Be aware that many everyday chemicals and foods contain acids Understand that acids can burn you and can be dangerous Know that we must wear goggles when using acids and common hazard symbols Observe colour changes Use the term “indicator” when describing an acid Recognise that there are some substances that are not acids Recall that the opposite to an acid is an alkali</p> <p>Skills... Keeping self safe Hazards Chemical handling Observation Pair work/group work Testing skills Recording</p>

Year 9

	<u>Term 1</u>	<u>Term 2</u>	<u>Term 3</u>	<u>Term 4</u>	<u>Term 5</u>	<u>Term 6</u>
<u>Topics</u>	Physics- Energy, forces & the structure of matter.		Chemistry – Elements compounds & mixtures		Biology - Environment, evolution & inheritance	
<u>Knowledge and Skills</u>	<p>Knowledge...</p> <p>Introduction to coursework Describe, for common situations, the changes involved in the way energy is stored when a system changes. Exploring how energy can be transferred usefully and some transfers are unwanted Distinguish between energy resources that are renewable and energy resources that are non-renewable. A force is a push or pull that acts on an object due to the interaction with another object. Know the name of some forces and identify in practical scenarios Speed is measured by the distance travelled in a certain time.</p> <p>Skills...</p> <p>Identification Calculation Predicting Recording Analysing Concluding</p>		<p>Knowledge...</p> <p>Describe the distribution of elements in the periodic table. Recall that elements in the same group of the periodic table have similar properties. Recall that a mixture contains two or more substances which are not chemically combined. Identify the appropriate method to separate mixtures by filtration, distillation, crystallisation or chromatography. Describe how to separate mixtures by chromatography. Recognise that in paper chromatography, a solvent moves through the paper carrying different compounds different distances.</p> <p>Skills...</p> <p>Organising Listening Structuring Relating to use Making Adapting Mixing Filtering Distilling Chromatography separating</p>		<p>Knowledge...</p> <p>Identify producers Know these are components in photosynthesis. Identify other components and organise into equation for photosynthesis. Analyse food chains and move forward to understand relationships in a food web. Use key words such as consumer, producer, predator and decomposers. Know that sexual reproduction involves the joining of male and female sex cells. Know that sexual reproduction involves the mixing of genetic information and so variation in the offspring. Know that asexual reproduction involves only one parent. Remember what are characteristics Characteristics of different animals Some are advantageous to the environment</p> <p>Skills...</p> <p>Identifying Organising Justifying Evaluating effectiveness Joining Classification Explaining Variables Comparing</p>	

Year 10

	<u>Term 1</u>	<u>Term 2</u>	<u>Term 3</u>	<u>Term 4</u>	<u>Term 5</u>	<u>Term 6</u>
<u>Topics</u>	Chemistry – Chemistry in our World		Biology – The human body		Physics- Electricity, magnetism & waves	
<u>Knowledge and Skills</u>	<p>Knowledge...</p> <p>Acids react with some metals to produce salts and hydrogen. Hydrochloric acid produces chlorides and sulfuric acid produces sulfates. Students should be able to complete word equations for these reactions, given the names of the reactants. Acids are neutralised by alkalis The rate of a chemical reaction may be increased by increasing the temperature, Know that during the first billion years of the Earth’s existence, there was intense volcanic activity that released gases that formed the early atmosphere and water vapour that condensed to form the oceans. The early atmosphere was mainly carbon dioxide with little or no oxygen. The Earth’s atmosphere is now about fourfifths (80%) nitrogen and about one-fifth (20%) oxygen, with small amounts of other gases.</p> <p>Skills...</p> <p>Exam- collecting knowledge, applying to exam questions, reading, comprehension, asking for help, self confidence, independence.</p>		<p>Knowledge...</p> <p>Know cells are the building blocks of all living things Know some cells are specialised to carry out different functions in the body Relate their shape to their functions Know the difference between white and red blood cells Distinguish between their roles in the body Know that cells make tissues which make organs which work together in systems. Name systems in the body such as the respiratory, circulatory, urinary and digestive system. Know the role of organs in these systems. Be able to identify heart beat and what factors affect heart rate.</p> <p>Skills...</p> <p>Working together Working independently TDA assessment- independent thinking, making decisions, designing own experiment, method, prediction, identifying equipment, taking heart rate, graph work, conclusion, evidence analysing.</p>		<p>Knowledge...</p> <p>Skills...</p>	