



ARAB UNITY SCHOOL

CURRICULUM OVERVIEW

SCIENCE YEAR - 8

2019 - 2020

A guide for Parents and Students

Overview of the year:

The national curriculum for science aims to ensure that all pupils develop scientific knowledge and conceptual understanding through the specific disciplines of Science.

- **Biology** – Structure and Function of Living Organisms: Skeletal & muscular system, cellular respiration. Interdependence and Interaction: Relationship of organisms in an ecosystem, Food chain and food web, Material Cycles - Photosynthesis.
- **Chemistry** - Matter: Physical changes, particle model, Brownian motion, Particulate nature of matter: Density, pressure, diffusion, Chemical Reactions: Acids and alkalis, neutralization, combustion, thermal decomposition, oxidation and displacement reactions.
- **Physics** – Space Physics: Gravity, Electricity and Electromagnetism: Electrical Circuits, Series and parallel, Resistance, Magnetic field, DC motor.
- **Working Scientifically** – Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience and use scientific evidence to ask questions or to support their trends.

<p>TERM ONE</p> <p>Main topic, skills and content:</p>	<ul style="list-style-type: none"> • Structure and function of living organisms - The skeletal and muscular systems <p>Describe the structure and functions of the human skeleton, to include support, protection, movement and making blood cells. Explore biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles.</p> <p>Outline the function of muscles and examples of antagonistic muscles.</p>	<p>SECRET</p> <p>BYOD Effective Organizer, Creative thinkers, Reflective Learner</p> <p>Find out what happens when a shoulder dislocates and how the injury should be treated. Write a short report on it. Share it in class BYOD/Research at home Real life experience if any can be mentioned</p> <p>https://www.mayoclinic.org/diseases-conditions/dislocated-shoulder/symptoms-causes/syc-20371715</p>	<p>Formative Assessment 1 - Skeletal & Muscular System and Matter (Knowledge of Content) .</p> <p>Date: 29-30th September.</p> <p>Common site for Science</p> <p>https://www.bbc.co.uk</p> <p>https://www.teachitscience.co.uk/KS3.Science</p> <p>http://links4science.blogspot.com</p> <p>https://www.tes.com</p>
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	<ul style="list-style-type: none"> • Particulate Nature of Matter – Density, Gas Pressure, Diffusion Describe and explain the properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure. Investigate factors affecting diffusion. • Space Physics – Gravity Calculate how gravity differs on other planets and stars; gravity forces between Earth and Moon, and between Earth and sun (qualitative only). • Matter - Physical Changes, Particle model, Energy in Matter (Brownian Motion) Describe similarities and difference between states of matter, including density differences, between solids, liquids and gases. Explain Brownian motion in gases. • Material cycles and Energy – Photosynthesis, structure of leaf, Role of stomata 	<p>How do astronauts eat in space? What type of food items do they have? BYOD/Research at home Assessed on information gathered and presentation limited to 150-200 words https://science.howstuffworks.com/ast-ronauts-eat-in-space.htm</p> <p>BYOD Some gardeners use paraffin heaters in their greenhouses. These have 2 effects – find out what they are and how</p>	<p>Curricular test- Skeletal & Muscular system, Particulate Nature of Matter Space Physics Date: 20-24th October</p> <p>Formative Assessment 2 – Physical and chemical changes Nov 3rd -6th</p> <p>Winter exam Units: All units covered in Term 1. Date: 17-21 November</p>
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	<p>Demonstrate how plants make carbohydrates in their leaves by the process of photosynthesis and gaining mineral nutrients and water from the soil via their roots.</p> <p>Investigate factors affecting the rate of photosynthesis.</p>	<p>they increase the rate of photosynthesis. Hint think about combustion. H/W http://www.docbrown.info/ebiology/p_hotosynthesis.htm Ghaf Tree adaptation in desert related to structure of stomata http://www.giveaghaf.com/ghaf-story/</p>	
<p>TERM TWO</p> <p>Main topic, skills and content:</p>	<ul style="list-style-type: none"> <p>Chemical Reactions - Acids and alkalis, Neutralisation</p> <p>Define and explore properties acids and alkalis in terms of neutralisation reactions.</p> <p>Measure and record pH values from scale for measuring acidity/alkalinity; and indicators.</p> <p>Structure and function of living organisms - Cellular respiration</p> <p>Explain aerobic and anaerobic respiration in living organisms, including the breakdown of organic materials.</p> <p>Compare aerobic and anaerobic respiration in terms of the reactants, the products formed and the implications for the organism.</p> 		<p>Formative assessment 1: Acids and Alkalis – Neutralisation Jan 26-30</p> <p>Curricular test:</p> <ul style="list-style-type: none"> <p>Topic: Cellular respiration, Chemical reactions, Matter</p> <p>Feb 9-13</p>

	<ul style="list-style-type: none"> • Matter – Pressure in Solids and Liquids, Atmospheric Pressure Explain how atmospheric pressure changes: decreases with increase of height as weight of air above decreases with height. Investigate pressure in liquids, increasing with depth; upthrust effects, floating and sinking. • Chemical Reactions - Reactions of acids with metals, Reactions of acids with alkalis Describe reactions of acids with metals to produce a salt plus hydrogen. Describe reactions of acids with alkalis to produce a salt plus water. • Electricity & Electromagnetism – Electrical Circuits, Series and Parallel, Resistance Investigate and explain current and voltage in series and parallel circuits. 	<p>Why do people float on the dead sea? Short report on A4 size paper. https://en.wikipedia.org/wiki/Dead_Sea</p>	<p>Formative assessment 1: Electricity & Electromagnetism-March</p>
<p>TERM THREE</p>	<ul style="list-style-type: none"> • Interdependence and Interaction - Food chain and Food Web 		<p>Formative assessment: Interdependence and interaction</p>

<p>Main topic, skills and content:</p>	<p>Explain the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops.</p> <ul style="list-style-type: none"> Relationships in an ecosystem, Bioaccumulation <p>Explain how organisms affect, and are affected by, their environment, including the accumulation of toxic materials.</p> <p>Describe the importance of plant reproduction through insect pollination in human food security.</p> <ul style="list-style-type: none"> Electricity & Electromagnetism – Static Electricity, Magnetic Field, DC motor <p>Explore the magnetic effect of a current, electromagnets, DC motors (principles only).</p> <ul style="list-style-type: none"> Chemical Reactions – Combustion, thermal decomposition, Represent chemical reactions using formulae and using equations. Describe combustion, thermal decomposition, 	<p>BYOD Research and find and explain Faraday’s discovery Michael Faraday.</p> <p>https://www.khanacademy.org/science/physics/magnetic-forces-and-magnetic-fields/magnetic-flux-faradays-law/a/what-is-faradays-law</p>	<p>Date: 26th April</p> <p>Internal assessment: Chemical Reactions Dates: 17th May</p> <p>Final exam: All the topics Dates: May 31-4th June</p>
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