Curriculum Map Year 8 – Science

Topic Name	Term	Content / skills developed with link to NC / exam board subject content (if applicable)	Reflection on previous learning	Progress to future learning	Global Citizenship links	Qatar National Identity links
Food and Nutrition	**1**	• State the function of each of the food groups in the body • Safely carry out food tests • Use the results of food tests to work out what nutrients are found in sample foods • Describe the benefits of a balanced diet and explain different deficiency diseases • Identify the main organs in the digestive system • Explain the function of each of the organs in the digestive system • Describe an experiment to make a model of the small intestine	**This links to cells, tissue, and organ systems (digestive) which is covered in year 7.**	**Builds a foundation of food and nutrition which links to a GCSE Practical whereby students will investigate food samples for the presence of glucose, starch, protein, and fat**	**PRIDE Prepare for future challenges Developing skills for the future**	**Conscious thinking about my Environment**
Sound	**1**	• Recall that sounds are made by vibrations. • State the meaning of pitch, volume, intensity, frequency, amplitude. • Recall that sound travels through different materials by vibrations and needs a medium. • State the meaning of transverse wave and longitudinal wave.	**This links to energy which is covered in year 7.**	**This links for the GCSE topic of sound and waves.**	**PRIDE Prepare for future challenges Developing skills for the future**	**Sustainability: self-esteem and participation**

		• Explain why the intensity of sound waves decreases with increasing distance from a source in terms of the waves spreading out. •				
Combustion	**1**	• State the difference between incomplete and complete combustion • State the test for hydrogen, carbon dioxide and water. • Sate the meaning of thermal decomposition • Define an exothermic reaction and link it to oxidation • Explain the importance of staying safe in the lab and recognise hazard symbols • Understand how global warming works and state how increasing greenhouse gases affect climate change •	**Links to hazard symbols and lab safety which was covered at the start of year 7.**	**Builds a foundation of understanding to be able to describe and explain complete combustion which is part of the IGCSE Chemistry specification**	**PRIDE** **Prepare for future challenges** **Developing skills for the future**	**Conscious thinking about my Environment** **Sustainability: responsibility**
Ecosystem	**1**	• Identify variation between organisms of the same type and of different types. • Identify the physical environmental (abiotic) factors that make up the environment in a habitat. • Describe the adaptations of a range of organisms to their habitats and compare adaptations in plants and animals that live in similar places.	**This links to reproduction and organ systems which is covered in year 7.**	**This links to the transfer of substances and energy along a food chain which is in the IGCSE specification for Biology**	**PRIDE** **Prepare for future challenges** **Developing skills for the future**	**Conscious thinking about my Environment**

		• Explain how particular adaptations increase the chances of survival. • Give reasons for identifying organisms as: carnivores, consumers, herbivores, omnivores, predators, prey, producers. State the resources that organisms need from their habitats and ecosystems. • Explain how changes in a population or community in an ecosystem affect other populations and predict these changes using food webs.				
Periodic table	**2**	• Recall that different elements have different physical properties. • Identify the chemical symbols for some common elements. • Use a simple (Dalton's) atomic model to describe elements and compounds. • Explain how chemical reactions are different from physical changes, and use observations to decide whether a chemical reaction has taken place • Interpret formulae to identify the types of and ratio of atoms in a compound. • Describe the main features of the periodic table, Alkali	**This links to atoms, elements and compounds which is covered in year 7.**	**Builds a foundation of understanding to be able to describe and explain trends in the periodic table which is part of the IGCSE Chemistry Specification.**	**PRIDE Prepare for future challenges Developing skills for the future**	**Conscious thinking about my Environment**

		metals, Halogens, Nobel Gases • State what is meant by atomic number and periodic table arrangement.				
Plant Reproduction	**2**	• Identify the parts of a plant • Label the parts of a flowering plant: which are male and female • Describe the role of the parts of a flowering plant • Describe the structures of an insect-pollinated and a wind-pollinated flower • and explain how each is adapted for pollination • Understand that the growth of the pollen tube followed by fertilisation leads • to seed and fruit formation • Understand the conditions needed for seed germination • Understand how germinating seeds utilise food reserves until the seedling can carry out photosynthesis	**This links to reproduction and organ systems which is covered in year 7.**	**This links to the study of plants which is in the IGCSE specification for Biology**	**PRIDE** **Prepare for future challenges** **Developing skills for the future**	**Conscious thinking about my Environment**
Light	**2**	• Recall how light travels. • State light and sound different speeds. • Ray diagrams to show refraction light in and out of different mediums. • <u>Explain</u> how lenses shape affects rays of light	**This links to energy which is covered in year 7.**	**Builds a foundation of understanding to be able to describe and explain light which is part of the IGCSE Physics Specification.**	**PRIDE** **Prepare for future challenges** **Developing skills for the future**	**Sustainability: self-esteem and participation**

		• **<u>Understand the</u> structure of eye and camera and similarities and differences in structures of camera and eye** • **Explain how we see secondary colours and what they are made of.** • **Explain the difference between refraction and reflection** •				
Breathing and Respiration	**3**	• **Recall what happens in respiration** • **Compare combustion and respiration and photosynthesis word and symbol equations.** • **State the parts of respiratory system.** • **State how alveoli ensure gas exchange and different to ventilation.** • **cells are made.** • **Describe the functions of components of respiratory system and specialised cells.** • **Describe differences of respiration in plants and animals** • **Detecting and monitoring respiration in plants and animals** • **Recall what happens anaerobic respiration**	**This links to cells, tissue, and organ systems (circulatory) which is covered in year 7.**	**Builds a foundation of understanding to be able to describe and explain respiration which is part of the IGCSE Biology Specification.**	**PRIDE** **Prepare for future challenges** **Developing skills for the future**	**Sustainability: self-esteem and participation**

Metals and uses	**3**	• **Relate metal properties to their uses.** • **Describe corrosion as metal oxidation and rust prevention techniques.** • **Model simple balanced symbol equations of rusting.** • **State the reactions of difference metals with water and acid.** • **State the test for hydrogen.** • **Recall the process of making salts.**	**This links to atoms, elements and compounds which is covered in year 7.**	**Builds a foundation of understanding to be able to describe and explain reactivity of metals which is part of the IGCSE Chemistry Specification.**	**PRIDE** **Prepare for future challenges** **Developing skills for the future**	**Conscious thinking about my Environment**
Earth and Space	**3**	• **Recall positions of earth and other planets in the solar system** • **State differences in seasons terms of day length and sun height and relate changes to earth tilt and axis** • **State what is meant by a magnetic field and recall the shape of magnetic fields.** • **Recall how gravity acts.** • **Explain how weight changes even when mass does not** • **Recall planets and natural satellites kept in orbit due to gravity.** • **State the meaning of sun, star, galaxy, milky way, and universe.** • **Describe the milk way structure.** • **State the meaning of light year and explain that stars in**	**This links to energy which is covered in year 7.**	**Builds a foundation of astrophysics which is part of the IGCSE Physics Specification.**	**PRIDE** **Prepare for future challenges** **Developing skills for the future**	**Conscious thinking about my Environment** **Sustainability: responsibility**

		constellation only appear close to each other • Compare sizes and distances of objects in space.				
Math skills in science	**3**	• Students will be learning about how to use maths in science. • Students will be practising how to draw graphs correctly. • Students will be identifying variables in an investigation. • Students will be learning how to rearrange equations	**This links to previous content covering drawing graphs and using equations correctly.**	**Builds a foundation for correctly identifying variables and drawing graphs which is a part of the IGCSE Specification for Chemistry, Biology and Physics**	**PRIDE** **Prepare for future challenges** **Developing skills for the future**	**Sustainability: self-esteem and participation**