NHSG Key Stage 3 Unit Overview for Y8 Biology: Body Systems

Scheme of Learning	Body Systems Y8 Biology	
	Subject content	**Skills**
Learning Objectives	I can state the effect of exercise on heart rate and breathing rate I can explain why active muscles require more glucose and oxygen I can describe the features of a mammalian lung I can describe how substances move by diffusion I can explain the adaptations of a mammalian lung (especially alveoli) for efficient gas exchange I can describe how oxygen and glucose are transported to respiring cells in the body I can name the parts of the mammalian heart I can state the functions of the skeletal system. I can label the main bones of the human skeleton. I can name key muscles and their roles I can describe the function of muscles. I can explain how muscles and the skeleton interact to cause movement. I can explain how antagonistic muscles work	• Able to bring together serval scientific concepts with a good standard of written communication. • Use models to demonstrate scientific concepts.
Key Question	How do body systems work in humans?	
Knowledge	Key terminology • Exercise • Health • Aerobic respiration • Alveoli • Anaerobic respiration • Aorta • Arteries • Atria • Bronchioles	Key concepts and skills How organs work together to deliver substance round the body. How muscles work in antagonistic pairs. The multiple function of bones. Using diagrams and models to show scientific concepts.

NHSG Key Stage 3 Unit Overview for Y8 Biology: Body Systems

	• Bronchi • Carbon dioxide • Cell membrane • Cilia • Circulation • Cytoplasm • Diaphragm • Heart • Inhalation • Lactic Acid • Nucleus • Veins • Vena Cava • Ventricle	
Ongoing Assessment	• Retrieval questions at the start of every lesson to recap previous content and identify misconceptions or holes in knowledge. • Key misconceptions – That deoxygenated blood is blue. The air we breathe out is only carbon dioxide. Respiration is breathing. • Worksheets for all major concepts to be used for self and peer assessment during lesson time. • Revision checklist at beginning of handout pack and retrieval questions at the end the end of the topic to assess what the student needs to further revise before the test.	
Final Assessment	• Students can state and explain the effects of exercise on the body, can describe and explain function (and adaptions) of lungs, heart, skeleton and muscular systems. • Knowledge – definitions, identification, methodology and nomenclature. • Practical skills to identify acids and bases. Practical skills to work safely and confidently. End of topic test, 30 marks in 35 minutes. Including a mixture of MCQ, short answer and long answer questions.	
Content	This topic builds on knowledge from a previous topic within the biological molecules unit, respiration. It also builds on the cells knowledge from Y7 and introduces core concepts of diffusion and gas exchange which link to GCSE movement of substances and transport systems (B2.1 and B2.2) Muscles and bones are not covered at GCSE but muscles are covered at A level so this helps them to access future learning.	
Careers	Phlebotomist, physiotherapists, occupational therapists, cardiologists, osteopath, chiropractor, sports science.	
Diversity and Inclusion	The breathing system: • What does it mean to *decolonise* health and medicine and Racialising the Spirometer handout with questions. Diffusion and gas exchange: • High-Altitude Adaptations article with questions on the Quechua community Circulatory system: • How does heart disease affect different racial groups? Discussion and information.	

NHSG Key Stage 3 Unit Overview for Y8 Biology: Body Systems

Support	Every student receives handout packs including learning checklist List of recall questions for entire topic in booklet PowerPoints for each lesson are on SharePoint to help catch up with missed lessons or for students to review content. KS3 science extracurricular club is available for those who want to delve deeper into science topics and improve practical skills.
Challenge	• Stretch challenge question on end of topic test. • Stretch and challenge question sheet for class teacher to use at their discretion. • Wider reading links on SharePoint page. • Various science challenges and competitions.