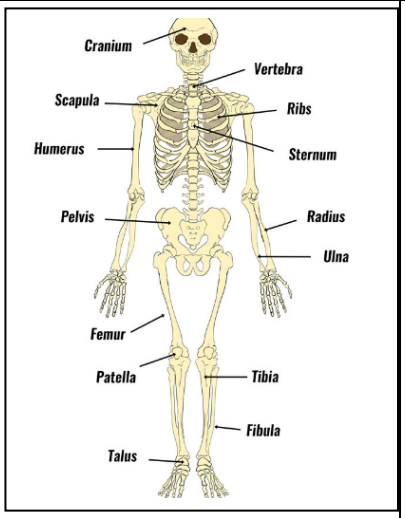
Topic: Y7 LIVING PROCESSES – MOVING & BREATHING

Duration: 10 LESSONS

Composite: Unit test

Key vocabulary:

Cell
Tissue
Organ
Organ system
organism
Gas exchange
Lungs
Ribcage
Inhale/exhale
Diaphragm
Alveoli
Bronchus
Bones
Joints
Cartilage
Ligament
Tendon
muscle
respiration



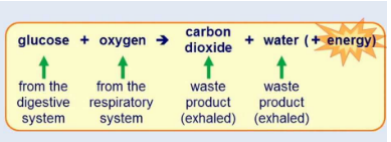
(All Scientific names for skeleton and breathing system.)
Impressive Vocabulary:
antagonistic

Core knowledge Components

1. Name the major bones of the skeleton including the skull/ cranium, jaw, collarbone/ clavicle, sternum, ribs, humerus, radius, ulna, pelvis, femur, tibia, fibula,
2. Naming the parts of synovial joint
3. Examples of movement in antagonistic pairs in the body.
4. State at least 2 examples of antagonistic pairs of muscles
5. Explain how antagonistic muscles work together to allow movement at a joint
6. Name, locate and describe the movement in the 3 types of joint.
7. Label a hinge and socket joint.
8. Understanding function and parts of the Respiratory system
9. Label the main parts of the breathing system to include mouth, nose, trachea, bronchi, bronchioles, alveoli, right and left lung, diaphragm, ribs, intercostal muscles
10. Describe and explain at least 2 adaptations in the alveoli
11. Explain the processes of diffusion
12. Name and describe 2 factors that negatively affect lung function
13. Examples of diffusion
14. Describe and explain the effects of 2 named recreational drugs on the human body

Powerful knowledge components crucial to commit to long term memory

1. **Name the 5 Levels of Organisation: Cells, tissues, organs, organ systems, organism**
2. **Describe what antagonistic pairs are.**
3. **Name four Functions of the skeleton including movement, support, blood production and protection.**
4. **State the word equation for aerobic respiration**



5. **Definition of diffusion linked to oxygen**
6. **State the difference between breathing and respiration.**
7. **State the effects of some named recreational drugs on body function.**
8. **Name 3 types of joint.**
9. **State where gas exchange takes place.**

Links to previous and future topics

KS3: Cells, Reproduction, Elements and Compounds, particles and solutions, aerobic and anaerobic respiration
KS4: Key Concepts; Cells & Control; Cardiovascular disease; Exchange & Transport in Animals

Topic: Forces and Space		Duration: 4 weeks	Composite:
Key vocabulary: Newtons Resultant Equilibrium Friction Contact Non-contact Speed Weight Gravity Pressure Orbit Tilt Axis Rotate Solar Pole	**Core knowledge Components** Describe a force and the effect of forces with examples. Use a force meter to measure forces and link the name of the unit (N) to the scientist Isaac Newton. Give examples of forces that are contact and non-contact in specific situations. Eg gravity, magnetism and friction. Analyse situations and calculate overall, resultant forces. Construct speed time graphs and interpret changes in a journey using the shape of the graph. eg What does a horizontal flat line mean on a distance, time graph? (Stationary) What does a sloping line with a constant gradient mean on a distance, time graph? (Moving at constant speed) Use the pressure equation P=F/A to analyse situations and explain using force and area how objects can operate. Explain how the mass of an object in space remains unchanged but gravity will affect its weight. What is the equation linking weight and mass? Use data from different gravities to calculate weight. Outline the components of our solar system. Sun/ star/ planets/ satellites/ planetesimals, asteroids. Describe how the differences in seasons and day length change between planets in our solar system. Evaluate the search for extra terrestrial life and the design implications of exploration. What are the conditions necessary for life? A habitable temperature, atmosphere and a magnetic field	**Powerful knowledge components crucial to commit to long term memory** • **3 words that describe what a force is.** • **What equipment is used to measure forces?** • **What units are forces measured in?** • **Define a resultant force** • **State the names of some contact forces:** • **State the names of some non-contact forces:** • **What is the equation for speed** • **What is the equation for pressure** • **Define the difference between weight and mass** • **What is an earth year?** • **What is an earth day?** • **What is meant by a light year?**	**Links to previous and future topics** This topic helps students to develop the skills required to solve problems involving multiple forces. This topic provides students with knowledge of units and equations general use in Key Stage 4. Prepares triple science students for astronomy in Key Stage 4. Prepares students for 'Motion, Pressure and Moments' in year 8.

Topic KS3 year 7 Elements, compounds and reactions		Duration 8 lessons including assessment	Assessment end of topic test
Key vocabulary Element , Atom, Conductor, Malleable, Brittle, Lustrous Compounds, Molecules, Covalent, Formula, Ratio Reversible, Irreversible, Endothermic, Exothermic, Reactants Products, Equation Equation, Symbol, Atom, Product Effervescence, observation Balanced,	**Core Knowledge** 1. What is an exothermic reaction: A chemical reaction that releases heat to the surroundings 2. What is an endothermic reaction? A chemical reaction that takes in heat from the surroundings 3. What is respiration? Is a chemical reaction between glucose and oxygen that takes place in cells to release energy	**Powerful Knowledge** 1. **What is an element**: A chemical substance made of only one type of atom 2. **What properties do metals have?** Metals are malleable, conduct electricity and heat, have high melting points, shiny 3. **Where are metals and non-metals found on the Periodic Table?** Metals are found on the left and middle of the Periodic Table. Non-metals are found on the right. 4. **What is a compound**: A chemical substance that is made of two or more different elements combined together 5. **What is a molecule**? A groups of atoms held together by covalent bonds 6. **What is the difference between a chemical reaction and a physical change**? A chemical reaction is irreversible and produces new chemical substances whereas a physical change can be easily reversed and does not produce new chemical substances. 7. 8. **What is combustion**? Is a chemical reaction when a fuel burns in oxygen to release energy **What is oxidation?** A chemical reaction between an element and oxygen to form an oxide	**Links to previous and future learning** Previous – the particle model – changing states Cells and respiration Future- Plants and respiration Digestion Acids and alkalis