

Meden School Curriculum Planning							
Subject	Biology	Year Group	7	Sequence No.	1	Topic	Organisms and Body Systems

Retrieval	Core Knowledge	Student Thinking
What do teachers need <b>retrieve</b> from students before they start teaching <b>new content</b> ?	What <b>specific ambitious knowledge</b> do teachers need teach students in this sequence of learning?	What real life examples can be applied to this sequence of learning to <b>development of our students thinking, encouraging them to see the inequalities around them and 'do something about them!'</b>
<p><b>KS2: Year 2</b> Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>Notice that animals, including humans, have offspring which grow into adults.</p> <p><b>KS2: Year 3</b> Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p><b>L1:</b> Identifying whether certain things are alive or not alive, by using <b>MRS. GREN</b>. Which stands for <b>movement, respiration, sensitivity, growth, reproduction, excretion and nutrition</b>. <b>Movement</b> meaning for something to have the ability to move, <b>respiration</b> the process of getting energy and disproving the <b>misconception that respiration is breathing</b>, <b>sensitivity</b> the ability to sense and touch to be aware of surroundings, <b>growth</b> when something grows larger, <b>reproduction</b> the ability to produce offspring, <b>excretion</b> the removal of waste and <b>nutrition</b> using diet to get the correct nutrients required for the body.</p> <p><b>L2: Unicellular</b> is an organism made of one cell and <b>multicellular</b> is an organism made of many cells. Understanding that a <b>cell</b> is the <b>basic building block of life</b> and that a <b>microscope</b> is required to see them. Knowing that an <b>organism</b> is a living thing. Identifying different <b>unicellular organisms: fungi, amoeba, bacteria and euglena</b>.</p> <p><b>L3:</b> Researching <b>multicellular organisms</b>, knowing that the starting point is a <b>cell</b>, lots of similar cells joining together to do a function is a <b>tissue</b>, lots of different tissues coming together to complete a function is an <b>organ</b> and lots of organs working together is an <b>organ system</b> and this as a whole creates an <b>organism</b>. Identifying different organ systems in the bod: <b>skeletal system, central nervous system, circulatory system, respiratory system, digestive system and muscular system</b>.</p> <p><b>L4:</b> Researching <b>organ system</b>. <b>Skeletal system</b> is required for <b>movement</b>, consists of <b>bones, ligaments and cartilage</b>, and interacts with the <b>circulatory, muscular and respiratory systems</b>. <b>Central nervous system</b> needed for <b>gathering information and responding</b>, consists of <b>brain, spinal cord and nerves (neurones)</b>, and interacts with <b>all body systems</b>. The <b>circulatory system transports materials</b> around the body to cells, consists of the heart, <b>arteries, veins, capillaries and red blood cells</b>, interacts with <b>respiratory, digestive, excretory and nervous systems</b>. The <b>respiratory system takes in oxygen and removes carbon dioxide</b>, consists of the <b>nose, trachea, bronchi, bronchioles, alveoli and lungs</b>, interacts with <b>circulatory, excretory, muscular and nervous systems</b>.</p>	

**The digestive system** is required for **ingestion of food, the breaking down of food and removal of indigestible waste**, consists of the **mouth, salivary glands, oesophagus, stomach, small intestine, large intestine, pancreas, liver, gall bladder, rectum and anus**, interacts with the **circulatory, muscular and nervous systems**. **Muscular system** is required for **movement via contractions**, consists of **cardiac muscle, smooth muscle, skeletal muscle and tendons**, interact with **circulatory, skeletal, digestive, nervous and respiratory systems**.

**L5: The nervous system**, know that a **stimulus is a change in the environment** and organisms must detect them. Identify which **sense organ** detects each type of **stimuli**. Eyes for light, ears for sound, skin for temperature/pain, mouth for taste, nose for smell and understand how this is all controlled by the **central nervous system** made up of the **brain, spinal cord** and **neurones** (nerve cells), which uses **reflex reactions to protect** our bodies.

**L6: Point discrimination** practical to explain how **receptors** in our skin relates to **reflex reactions** via the **sensory, relay and motor neurones**. Know real life examples of the point discrimination practical: in hospital to discover any nerve damage.

**L7: Reaction time practical**. How to conduct a practical, that **control variables** are kept the same, the **dependent variable** is what is being measured and the **independent variable** is what is being changed. How to calculate **mean** by adding all of the measurements and dividing them by how many were taken, and using a **conversion table** to find speed.

**L8: Functions of the skeleton**, the skeleton is used for **support, protection, movement and making new blood cells**. Identifying certain bones within the skeletal: **femur, patella, humerus, skull, tibia, fibia, spine, mandible**.

**L9: Different types of muscle: cardiac (only in the heart), smooth (no stripes), skeletal (stripy)**. Discovering the difference between **voluntary** which we **consciously think about** and **involuntary muscles** which we **don't consciously think about**. Understanding that **antagonistic muscle pairs** are pairs of muscles that work in opposite, as one **contracts** the other **relaxes**, provided with the example: bicep and tricep.

**L10: Biomechanics** is the study of how living organisms move and how **levers** affect this process. Understanding the different types of levers, **class 1** (fulcrum between the load and the force), **2** (fulcrum at one end effort at the other), and **3** (effort in the middle, load at one end and fulcrum at the other) depending on where the **pivot, load** and **effort** are. Applying this to be able to calculate the **lift force** by using the equation: **distance of load from pivot x load force / distance of lift force from pivot**.