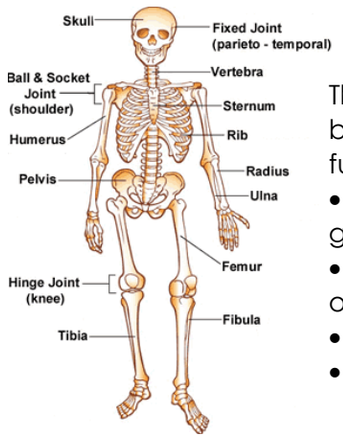
Year 8 Science: Term 1
Tissues and Organs, Acids and Alkalis

Week 1

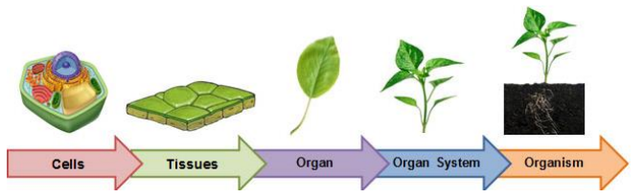
Big Picture: Tissues and Organs

The musculoskeletal system is made up of bones, muscles and other connective tissue.
Red and white blood cells are produced in the bone marrow of flat bones such as the **pelvis.**



The skeleton is made up of bones. It has 4 important functions:

- to **support** the body and give it shape
- to **protect** the internal organs
- to allow body **movements**
- to produce **blood cells**



Week 2

Big Picture: Tissues and Organs

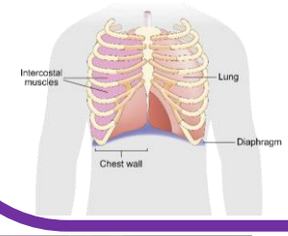
The function of muscles is to allow movement by **contracting. Antagonistic muscles** work in pairs. An example of antagonistic muscles is the **biceps** and **triceps.**

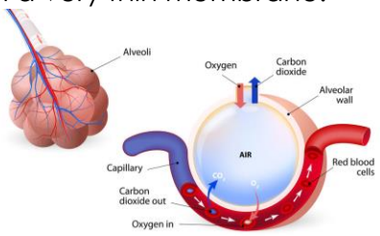
Joints occur where two or more bones join together. **Cartilage** in joints prevents bones rubbing together. An **organ** is made up of different tissues that work together to perform a certain function. We can use the **force applied** as a measurement of **muscle strength.** A **Newtonmeter** can be used to measure the force exerted by a muscle.

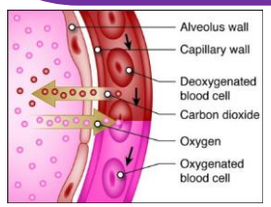
Week 3

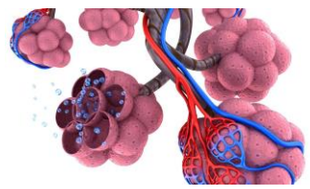
Big Picture: Tissues and Organs

The respiratory system is made of the organs involved in gas exchange. Breathing occurs through the action of muscles (intercostal muscles) in the **ribcage** and **diaphragm (**below the lungs) that change the size of the chest cavity. Air enters the body through the **nose** and **mouth.** It then travels down the **windpipe** (**trachea**), through a **bronchus** then a **bronchiole** into an **alveolus.** Oxygen diffuses into the blood at the alveoli, which are microscopic air pockets in the lungs lined with cells that form a very thin membrane.





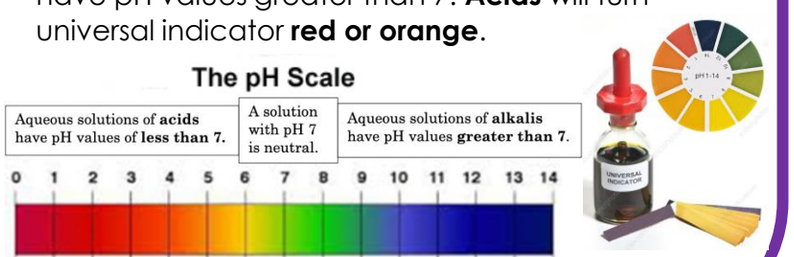




Week 4

Big Picture: Acids and Alkalis

Substances can be classified into **acidic**, **alkaline** and **neutral** solutions. The pH scale, from **0 to 14**, is a measure of the acidity or alkalinity of a solution and can be measured using litmus, universal indicator or a pH probe. A solution with pH 7 is neutral, acids have pH values of less than 7, alkalis have pH values greater than 7. **Acids** will turn universal indicator **red or orange**.



Week 5 & 6

Big Picture: Acids and Alkalis

Neutral solutions will turn universal indicator **green**.
Alkaline solutions will turn universal indicator **blue or purple**.
In neutralisation reactions an acid reacts with an alkali to form a salt and water. Neutralisation forms a neutral (pH7) solution. A salt is a metal compound made from acid. A salt is formed when the hydrogen in an acid is replaced by a metal.

Acids + alkali/base → salt + water
Acronym: A + A/B → S + W

Metal carbonates react with acids in neutralisation reactions to form a salt, water and carbon dioxide.

Acids + metal carbonates → salt + water + carbon dioxide
Acronym: A + C → S + W + C

Key words:

Cillia - Microscopic hairs that line the inside of the trachea and bronchi

Trachea - A tube that carries air from the mouth and nose, to and from the lungs. (Also called the windpipe)

Contract - To become smaller

Hydrochloric Acid - A type of acid often used in school experiments. Its formula is HCl.

Salt - A substance produced by the reaction of a metal and an acid

Universal Indicator - A substance that changes colour to show the pH of a solution and can be in liquid solution or paper form

Year 8 Science: Term 1
Tissues and Organs, Acids and Alkalis

Week 1

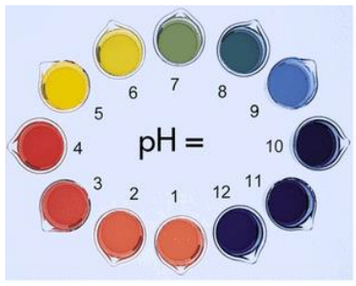
Questions	Answers
What is the function of the skeleton?	• to **support** the body and give it shape • to **protect** the internal organs • to allow body **movements** • to produce **blood cells**
Where are white blood cells produced?	In the bone marrow or flat bones
What is a bone?	Hard structures made from living tissue with a blood supply,
Why do you have a skull?	To protect the brain from damage.
What allows bones to move?	Antagonistic muscle pairs

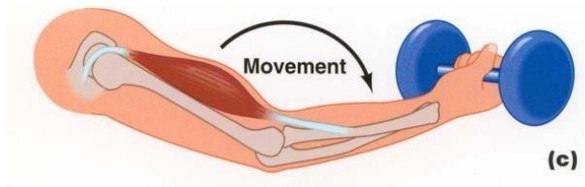
Week 2

Questions	Answers
Why are muscles tissues?	They are made up from the same type of cell with one function.
Where do you find joints?	Where two or more bones join together
Antagonistic pair means?	Two muscles which work together to cause movement.
Why does the heart contain muscle tissue?	To allow the heart to beat.
What does a muscle do?	Muscles contract causing movement.

Week 3

Questions	Answers
How are the alveoli adapted for diffusion?	Large surface area, close to blood supply, thin cell walls.
Name the muscles in the ribcage	Intercostal muscles and diaphragm
How can muscle strength be measured?	Pulling on a newton meter can allow muscle strength to be measured.
What is ventilation?	When you take air into the lungs.
Define an organ	Group of different tissues which come together to perform a function.





Week 4

Questions	Answers
What is an indicator?	Something with changes colour when added to an acid or alkali
Name two indicators	Universal indicator and Litmus Paper
Define the term corrosive?	Breaks something down on contact with it.
Universal indicator turns yellow, suggest a pH	5 or 6
Why can't litmus blue test alkalis	Litmus blue only tests for acids.

Week 5 & 6

Questions	Answers
How can you make sodium chloride?	React Sodium with hydrochloric acid.
What is a salt?	Where a metal compound has reacted with an acid
What colour with a salt turn universal indicator?	Green all salts have a pH of 7
What colour would pH 14 be	purple
What is the difference between a base and an alkali	Alkalis are soluble (can be dissolved in water)

Key words:

Cillia - Microscopic hairs that line the inside of the trachea and bronchi

Trachea - A tube that carries air from the mouth and nose, to and from the lungs. (Also called the windpipe)

Contract - To become smaller

Hydrochloric Acid - A type of acid often used in school experiments. Its formula is HCl.

Salt - A substance produced by the reaction of a metal and an acid

Universal Indicator - A substance that changes colour to show the pH of a solution and can be in liquid solution or paper form