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Glue on this side

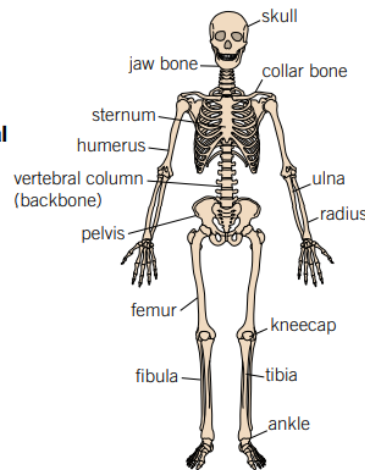
Movement

1	I can list some tissues and organs
2	I can describe a tissue, an organ and an organ system and describe how multicellular organisms are organised
3	I can state that some muscles may be stronger than others
4	I can identify and describe the functions of parts of the skeletal and muscular systems
5	I can explain why some muscles may need to be stronger than others
6	I can explain how the skeletal and muscular systems work together, including antagonistic pairs
7	I can suggest how artificial parts of the skeletal and muscular systems may affect an individual
8	I can explain that joints are where bones meet

	Keyword	Definition
1	antagonistic muscle pair	A pair of muscles working in unison to create movement at a joint – as one muscle contracts, the other relaxes.
2	bone	A tissue that forms a hard structure, used to protect organs and for movement.
3	bone marrow	Tissue found inside some bones where new blood cells are made.
4	cartilage	Smooth tissue found at the end of bones. This reduces friction between them preventing rubbing.
5	joints	Parts of the skeleton where bones meet.
6	ligaments	Connect bones in joints.
7	skeleton	All the bones in an organism.
8	tendons	Connect muscles to bones.

The skeleton

- The **skeleton** is made up of 206 **bones** which are a type of **tissue**
- Bones have a blood supply and are a living tissue
- The skeleton is part of the **muscular-skeletal system**
- The four main functions of the skeleton are:
 - To support the body – to keep you upright and hold **organs** in place
 - Protect organs – such as the skull protecting the brain
 - Movement – by working with muscles to allow you to move
 - Making blood cells – the **bone marrow** produces red and white blood cells



Movement

Joints occur between bones and allow movement, there are three main types of joints

Hinge

For back and forward movement, e.g. knees

Ball and socket

For movement in all directions e.g. hips

Fixed

Do not allow movement, e.g. skull

Joints have three main types of tissue:

Ligaments

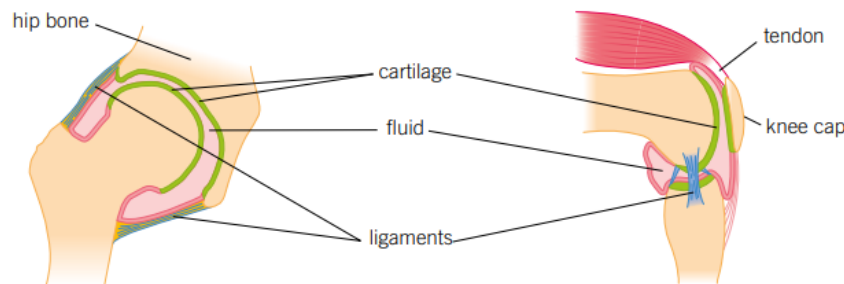
Connect bone to bone

Cartilage

Coats the end of bones as a protection

Tendons

Connects bone to muscle



Muscles

- Muscles** are a type of tissue which allows movement
- They pull on tendons which in turn pull on bones to allow movement
- Muscles like the triceps and biceps are known as **antagonistic muscle pairs**, they work together – as one contracts, the other will relax

Organs

- An organ is a group of tissues that have the same function
- They can work with other organs in an **organ system**, such as the respiratory system which uses organs like the heart and lungs to transfer oxygen around the body
- Vital organs are the organs that need to keep functioning for an **organism** to stay alive, e.g. the heart

Prior Knowledge From KS2:

Once the topic of variation and interdependence is taught there are many examples of adaptations of animals that allow one animal to escape predation and leads itself to discussion around muscles and the skeleton. Our second chosen topic is movement which is another unit which starts off in a concrete way with the skeletal system. This topic builds on KS2 muscular skeletal work and has physics links with the forces and levers.

Why?

Having an understanding of our bodies is important with being able to make decisions to keep us healthy but also in medical research when things go wrong for example muscular dystrophy and leukaemia.

Homework Menu Grid

Careers:

*Doctor
Physiotherapist
Pharmacist*

Topic	1 Point	2 Points	4 Points	6 Points	10 Points
Levels of Organisation 	Draw a flow diagram that shows the levels of organisation in a multicellular organism, including organ system, cells, organs, tissues and the organism. Give an example of each.	List the six organ systems and describe what their role is in the human body. Can you name an organ in each one?	Write a leaflet or poster for a doctor's surgery waiting room that explains how damage to the lungs by smoking might affect other organ systems too.	Research how a drug might affect different organ systems. Use your research to produce a short social media post that will warn people of the effects of the drug. Aim the post at your age group and focus on making a big impact.	Decide which organ you think is the most important in your body. Now produce a piece of persuasive writing that justifies your decision. When we justify, we explain why we have made our choice and why we have not chosen others.
The Skeleton 	Name some organs that rely on the skeleton for protection. Which bones protect them?	Draw a comic strip that highlights the four functions of a skeleton.	Describe the four functions of the skeleton and explain what the body would be like if the skeleton didn't exist.	Write two exam questions based on the skeleton and joints. At least one question should be worth three or more marks. Produce a mark scheme for your questions.	Create a model of the human skeleton, using whatever resources you have available.
Muscles 	Write an old style tweet (140 characters) that describes where muscles can be found in your body.	Write a list of all of the keywords you have used in this topic, along with their definitions. Make sure you learn them!	Draw a diagram of the bones and tissues around a joint. Label all of the different tissue types and describe their function.	Research the factors that may affect the force that can be exerted by different muscles. Present your findings in a way that would be accessible to someone wanting to improve their athletic performance.	Produce a video or animation that demonstrates how muscles work in pairs to cause movement. Include an explanation of how and why this happens.
Joints 	List as many joints in the body as you can.	Name the three different types of joints found within our body. Can you give an example of each?	Describe the difference between the three types of joints.	Arthritis is a condition that affects joints. Research arthritis and produce a short fact file.	Produce a drawing or video animation of what life would be like without joints.
Blood 	Name the components involved in pumping blood around the body.	Draw a diagram of a red blood cell, white blood cell and platelets,	Describe the differences between red blood cells, white blood cells and platelets.	Research what a blood transfusion is. Why is it important people are given a certain blood group?	Create a model of the structure of blood. Describe how each part represents the components of blood.

Future Learning:

At GCSE the need for energy to allow for muscular contractions, beating of the heart and examples of muscle cells being a tissue. It is not until A level Biology in year 13 that the structure of muscles and the sliding filament theory of movement is studied.

