

Science Knowledge Organiser

Animals including humans (muscles and skeletons)

Yr 3

Main Foci: Biology

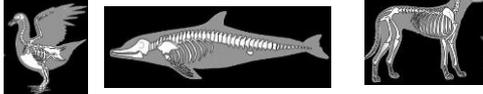
What should I already know?

- The parts of the human body and what they do.
- There are five types of **vertebrates** (mammals, fish, reptiles, amphibians, birds).
- **Vertebrates** are animals that have a **backbone**.
- Invertebrates are animals that do not have a backbone.
- All animals need water, air and food to survive.
- The different ways in which humans can be healthy.

What will I know by the end of the unit?

What are the different types of skeletons?

- **Vertebrates** are animals that have a **backbone**. These **skeletons** are called **endoskeletons** - this means that the **skeletons** are on the inside of the bodies. These **skeletons** grow with the bodies.



- When the **skeleton** exists outside the body, it is called an **exoskeleton**. An **exoskeleton** is a covering that supports and protects animals. These have to be shed and a new **skeleton** is grown.



What does an endoskeleton do?

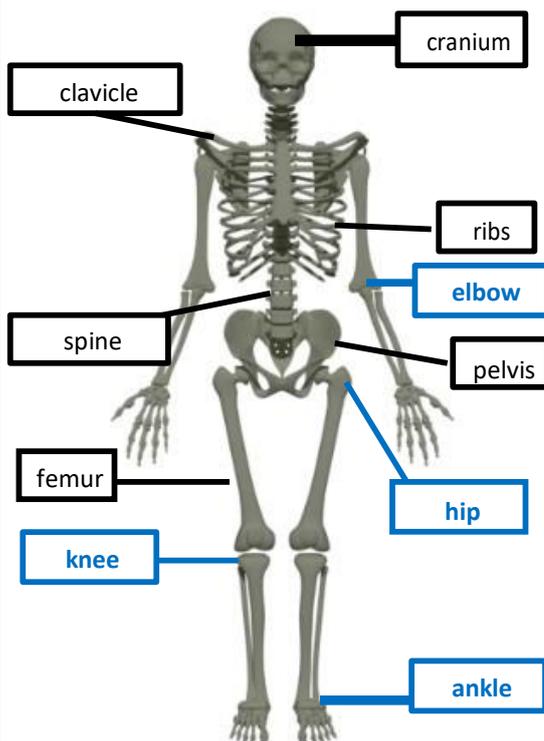
- The three most important things a **skeleton** does are:
 - provide **support** and shape to an animal's body
 - allow movement through the **joints**
 - **protect organs** (e.g. the skull protects the brain)

How do we move?

- **Joints** are where **bones** meet - they allow our bodies to move.
- **Muscles contract** and **relax**.
- If you place an **elbow** on a desk and lift your arm up, **muscles** in your upper arm (biceps) **contract** while **muscles** behind the upper arm (triceps) **relax**. The **muscles** work together and in opposition to allow your arm to move.
- **Muscles** are connected to **bones** by **tendons**.

The Human Skeleton

bones
joints



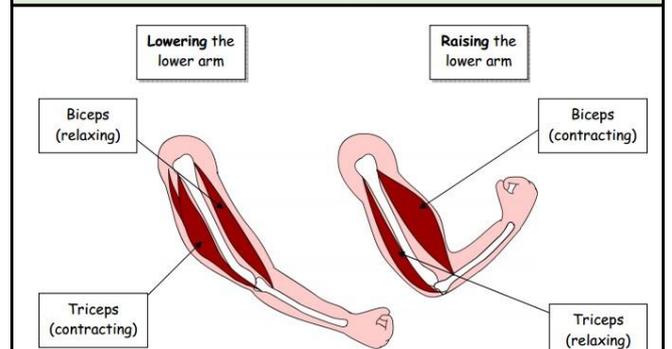
Procedural Knowledge

- Identify and group animals with and without **skeletons** and compare the ways in which they move.
- Match animals to their **skeletons** and explain your reasons for this.
- Explore ideas about what would happen if humans did not have **skeletons**.
- Identify which **bones** are used for **support** (e.g. **backbone**), which are used for **protection** (e.g. cranium) and which are used for movement (e.g. joints).
- Learn how **muscles contract** and **relax**.

Vocabulary

backbone	the column of small linked bones down the middle of your back. Also known as a spine.
bones	the hard parts inside your body which form your skeleton .
contract	to make smaller by drawing together; shrink or make tighter.
elbow	the bend or joint between the upper arm and the lower arm.
endoskeleton	the internal skeleton of an animal, especially the bony skeleton of vertebrates .
exoskeleton	the protective or supporting structure covering the outside of the body of many animals.
joints	the junction between two or more bones .
muscles	something inside your body which connects two bones and which you use when you make a movement.
organs	a part of your body that has a particular purpose.
protect	protecting someone or something means to prevent them from being harmed or damaged.
relax	When a part of your body relaxes , or when you relax it, it becomes less stiff or firm.
skeleton	the framework of bones in your body.
support	to hold something up.
tendons	a strong cord in a person's or animal's body which joins a muscle to a bone .
vertebrate	a creature which has a spine.

Muscles



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Question 1: Match the words to their meanings.	Start of unit:	End of unit:
<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 15%;">skeleton</div> <div style="border: 1px solid black; padding: 5px; width: 45%; text-align: center;">the hard parts inside your body which form your skeleton</div> </div>		
<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 15%;">joint</div> <div style="border: 1px solid black; padding: 5px; width: 45%; text-align: center;">something inside your body which connects two bones and which you use when you make a movement</div> </div>		
<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 15%;">muscle</div> <div style="border: 1px solid black; padding: 5px; width: 45%; text-align: center;">the framework of bones in your body</div> </div>		
<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 15%;">bone</div> <div style="border: 1px solid black; padding: 5px; width: 45%; text-align: center;">the junction between two or more bones</div> </div>		

Question 2: Which part of the skeleton protects the brain?	Start of unit:	End of unit:
skeleton		
head		
cranium		
ribs		

Question 3: Which part of the skeleton protects the heart and lungs?	Start of unit:	End of unit:
chest		
ribs		
cranium		
spine		

Question 4: What does the prefix exo- tell us about exoskeletons?	Start of unit:	End of unit:

Question 5: What connects a muscle to a bone?	Start of unit:	End of unit:
skeleton		
tendon		
joint		
blood		

Question 6: What is the purpose of a skeleton?	Start of unit:	End of unit:
protect our organs		
scare us		
keep us upright		
allows us to move		

Question 7: All animals that have a backbone are called...	Start of unit:	End of unit:
vertebrates		
invertebrates		

Question 8: Describe something that might happen if we did not have a skeleton.	Start of unit:	End of unit:

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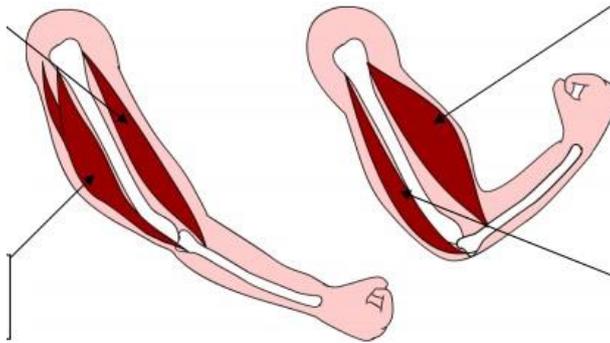
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Question 9: Complete the labels on muscles to show if they are contracting or relaxing. Write a sentence underneath the diagram to explain how our muscles help us move.

Start of unit:

End of unit:



Question 10: Complete the labels on the skeleton so that they have been named correctly.

Start of unit:

End of unit:

