St Pauls CE Academy—Science

Topic: Animals Including Humans	Year: 3	Term: 1

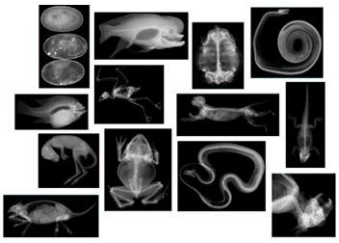
What should I already know?

- 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:

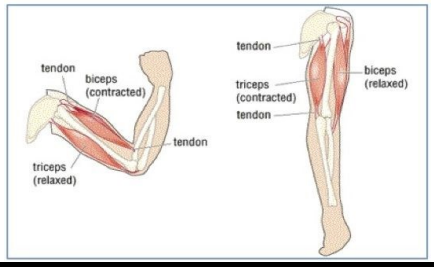
⇒ provide support and shape to an animal's body

⇒ 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.



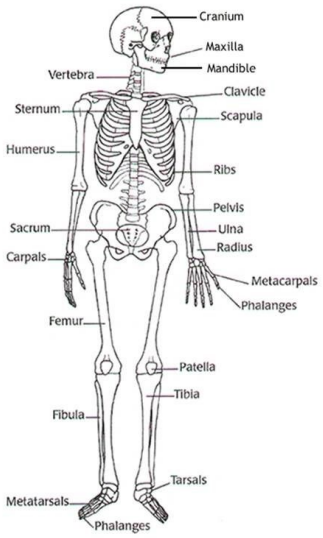
Skills to be covered in this unit

- Identifying that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.
- Identifying that humans and some other animals have skeletons and muscles for support, protection and movement.
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.
- Asking relevant questions and using different types of scientific enquiries to answer them.
- Setting up simple practical enquiries, comparative and fair tests.
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Using straightforward scientific evidence to answer questions or to support their findings.

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
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
tendon	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

Diagram—The Human Skeleton



Investigate!

- 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).
- Create a presentation to show how muscles contract and relax.
- Compare the size of straight arms and bent arms. What do you notice?