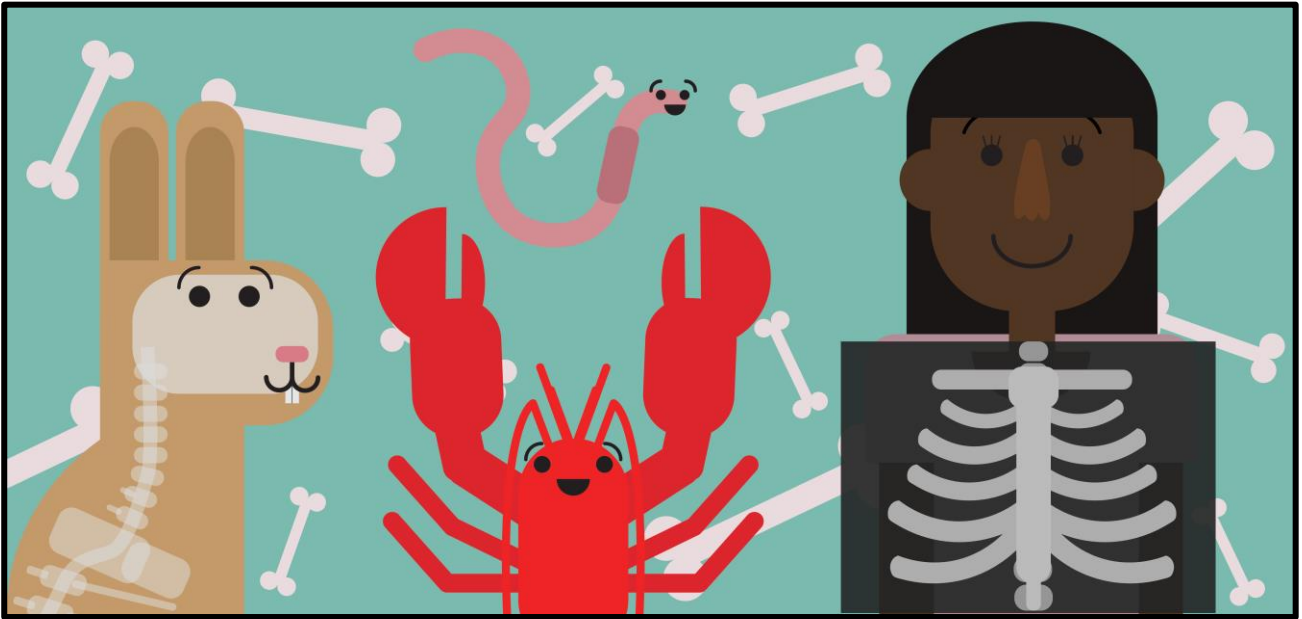


Deepening Understanding
YR4 Non-fiction Text
Skeletons by Vicky Birch



Living Organisms and their Skeletons

Planet Earth is inhabited by approximately 8.7million living organisms, all different and unique in their own way. From marine life, to mammals, to reptiles, to humans, there are so many wonderful creatures on the Earth all with brilliantly complex and diverse body designs. As a result, different creatures move and function in many varied ways, much of which is due to the type of body that they have. Think about a crab, a centipede and an elephant. With such assorted appearances, it's understandable they would have completely dissimilar skeletons and muscle functions too!

Endo, Exo and Hydro

Often when we think about a skeleton, we may imagine a human skeleton strung together in a doctor's surgery. However, this is not the only type of skeleton! In fact, there are three different types: exoskeletons, in which the skeleton is external and appears outside the body; endoskeletons, in which the skeleton is internal and



appears inside the body; and hydrostatic skeletons, where there is a flexible skeleton supported by fluid pressure.

Think about a rabbit. Can you see any bones? No. Can you directly feel any of its bones when you stroke it? No. So how do you know there is a skeleton there? It's simple: a rabbit is a mammal with an endoskeleton (a skeleton which is hidden within the interior of its body). Without this skeleton, it wouldn't be able to support itself, move or protect its vital organs. However, because it is concealed away, when we look at the rabbit we cannot see any of its bones.

Next, let's investigate the form of a lobster. Exoskeletons, more commonly known as 'shells', support the creature's body from the outside, forming an inflexible, rigid and strong case to encompass their internal organs. One important role of an exoskeleton is often to protect the animal from predators. With such a tough exterior, it makes it far harder for prey to attack.

Now imagine a wriggling earthworm, flexing and bending its body to writhe its way through the ground. The earthworm's body is filled with muscles and fluid, which act in one of the same ways that a human skeleton would - to support. However, there are no actual bones to support the earthworm in this way. Instead, fluid pressure acts in its place, allowing its physique to easily change shape - to move, curve and twist comfortably. Because of this, the earthworm has a hydrostatic skeletal system.

The Human Skeleton

The human skeleton and the skeleton of other mammals has three main functions: to support, protect and allow movement.

- 1) Consider a body without a skeleton. It would purely be a mound of skin and muscle lying limp on the ground with no way of holding itself up. Without the strength of our backbone and the sturdiness of our legs, we would be unable to stand, sit up or support ourselves.



- 2) Inside our bodies are many vital organs, without which we wouldn't survive. As a result, our body has designed a way to protect these organs from harm. For example, your ribcage surrounds your lungs and heart keeping them safe from damage. Your cranium protects your brain, meaning a gentle bump to the head is unlikely to kill you because that bump won't directly impact your brain. But it's not always a failsafe option relying on our skeletons to protect us! Following a serious accident, our skeletons too can be damaged which can then lead to broken bones and consequently even damaged organs.
- 3) Our skeletons are designed in such a way that we can freely move and do spectacular things with our bodies. A contortionist is able to train their body to move in such a way that they can wrap themselves into tiny spaces in unlikely positions! Without a skeleton, we wouldn't be able to run, skip, jump, cartwheel and much more. Although each individual bone in our skeleton is rigid and cannot bend, the joints that connect the bones together allow us to move in certain ways, for example, bending our elbows, rolling our shoulders and pointing our toes.

A Healthy Skeleton

With such an intelligent skeletal design, it's easy to take for granted how special our bodies are and we can often forget to look after them properly. Despite this, we must acknowledge ways to keep our bones strong and our skeletons healthy. One way to do this is by having a healthy diet. Foods rich in calcium will strengthen your bones and Vitamin D can help your body to absorb calcium. Alongside this, a balanced diet combining all of the 5 food groups (fruit and vegetables, fats and sugars, dairy, protein and carbohydrates) is essential to having a happy, healthy body.

