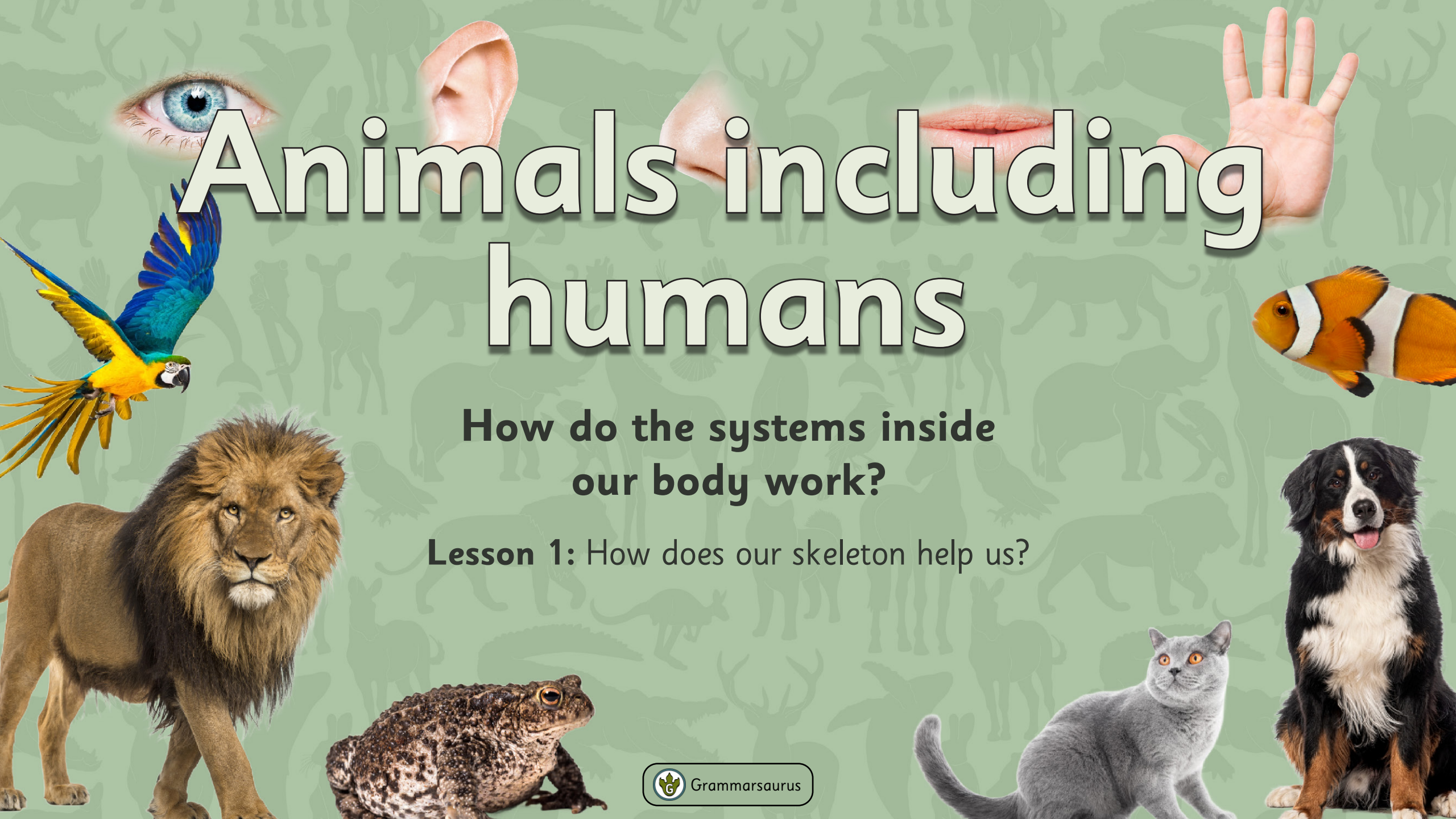
# Animals including humans

## How do the systems inside our body work?

**Lesson 1:** How does our skeleton help us?



Grammarsaurus

# Scientific enquiry types and skills



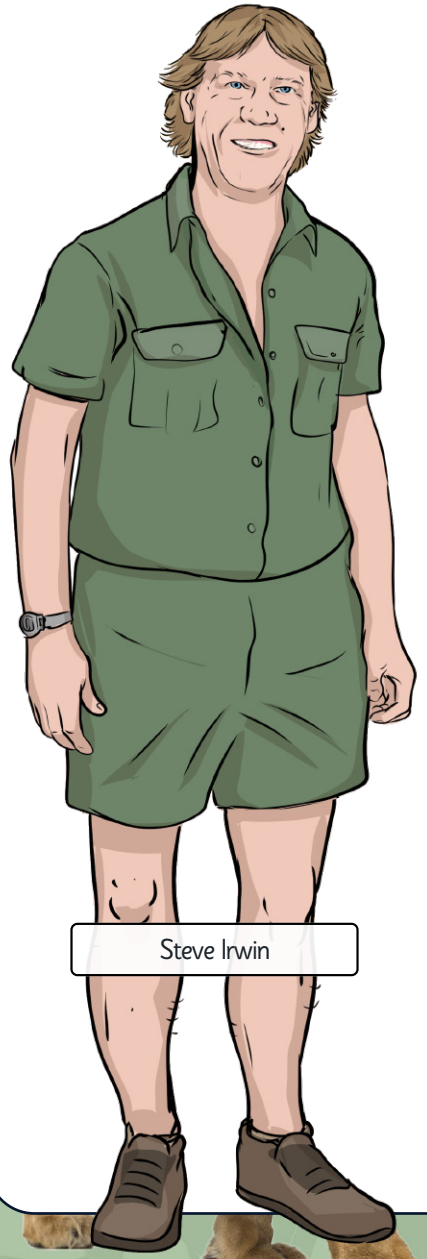

## Scientific enquiry types

- Testing
- Researching
- Observing
- Pattern seeking
- **Identifying & classifying** ✓
- Problem solving

## Working scientifically skills

- Asking questions
- Making predictions
- Setting up tests
- Observing & measuring
- **Recording data** ✓
- Interpreting & communicating results
- Evaluating

# How do the systems inside our body work?




**Lesson 1: How does our skeleton help us?**

**Lesson 2:** Do our bones affect the way we move?

**Lesson 3:** How do our muscles work?

**Lesson 4:** Do all animals have a skeleton?

**Lesson 5:** What types of nutrition do animals need?



# Key vocabulary for this lesson



**bone** – hard part of the skeleton



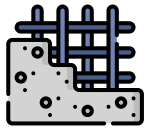
**human** – a person



**movement** – when something moves



**protection** – keeping something safe from harm



**support** – to hold something up and help keep its shape

# Identifying and classifying





Hi! My name is **Doctor Ana**. I am a **radiologist**. This means that I am a doctor who uses X-ray machines to see inside the body. X-rays help me look at **bones**, so I can check if they are **healthy**.

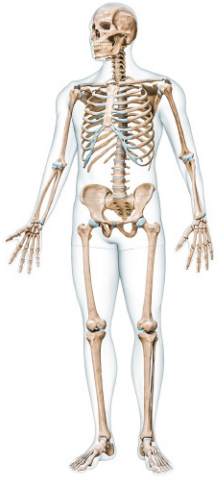
Part of my job is to **identify** the bones I see on an X-ray and check whether they look normal for that person. By spotting which bones are healthy and which might be hurt, I can **help people get the right treatment** and keep their bodies moving well.

**Have you ever had an X-ray taken at the hospital?**



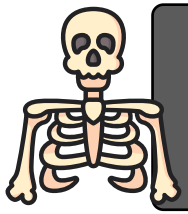
# What is a skeleton?

A **skeleton** is the framework of bones **inside an animal's body**. It gives the body its **shape** and **helps to hold it up**. Many animals, including humans, have a skeleton inside their body.









**New word alert!**
**skeleton** – a framework of bones to support the body

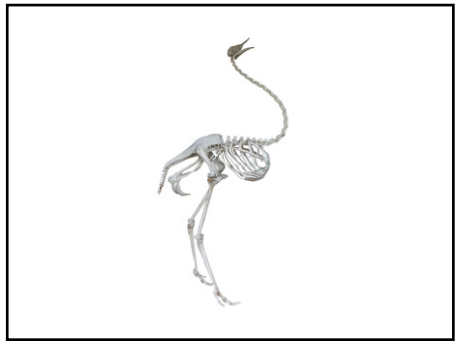
# Let's discuss

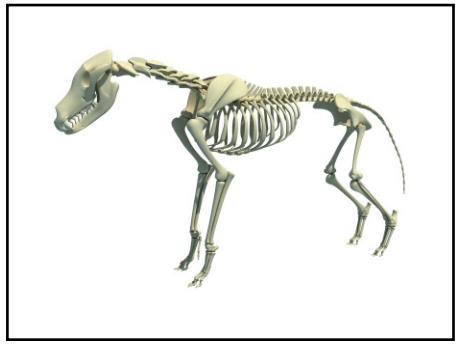
Let's think about **why** some animals have a skeleton. **Discuss** the following questions with your **learning partner**.



- What does the skeleton **help an animal to do**?
- Does it **help** with how the body **stands, stays safe** or **moves**?
- What **wouldn't** the animal be able to do if it didn't have a skeleton?







Use the following sentence starters to help you.

**"I think the skeleton helps an animal to…"**

**"If an animal didn't have a skeleton, then…"**

Be ready to **share your feedback** with the class before the **answers** are revealed.

# Let's discuss

answers

Some animals have a skeleton because their body needs a **strong support** inside them to **keep their shape** and **stop them from being floppy**.

A skeleton helps an animal **stay upright, move in different ways** and do the things it needs to do to **survive**.







# How does our skeleton help us?

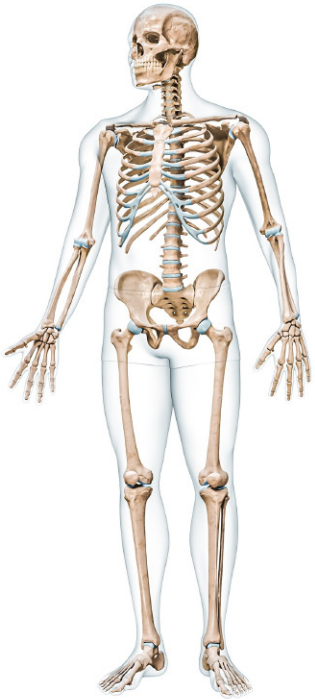
The skeleton has **three** important jobs:

**Support** – the bones in the skeleton **hold the animal up**. They give the body its **shape** and stop it from being **floppy**.

**Protection** – bones make a **hard shield** around important parts. The **skull protects** the **brain**, and the **ribs** protect the **heart** and **lungs**.

**Movement** – bones **help animals move**. Without a skeleton, animals would not be able to **stand** or **move** the different parts of their body.

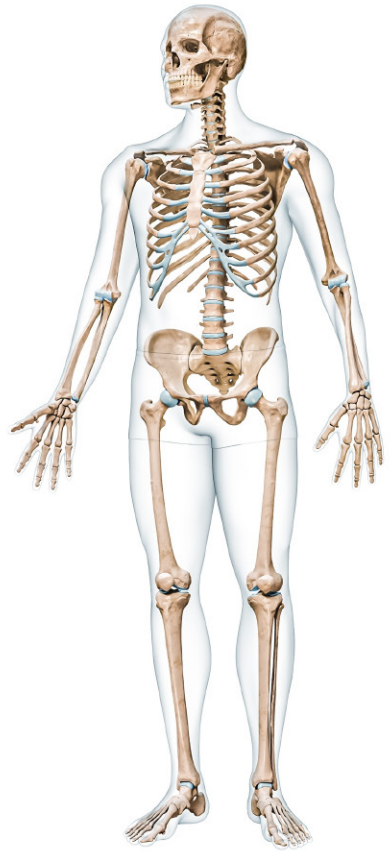
**Without bones**, animals would be a bit like **jelly**. They wouldn't be able to **stand**, **run** or **protect** their soft insides.



# Bones, bones, bones!

Identifying & classifying

In this lesson, we will be learning about the **human** skeleton and **identifying** the different bones that make up our skeleton.



Our bodies all have a skeleton made from lots of **different bones**.

The bones meet at **joints**, which is where we **bend**.

**Where can you find joints in your body?**

Point to any joints that you can find!

**Did you know?**
A baby has about **300 bones**, but an adult has only **206 bones**!



**New word alert!**
**joint** – where two or more bones meet to allow movement

# Let's discuss

Identifying & classifying



**Discuss** the following question with your **learning partner**.

Can you **name** any of the **bones** in your body?

Be ready to **share your feedback** with the class.

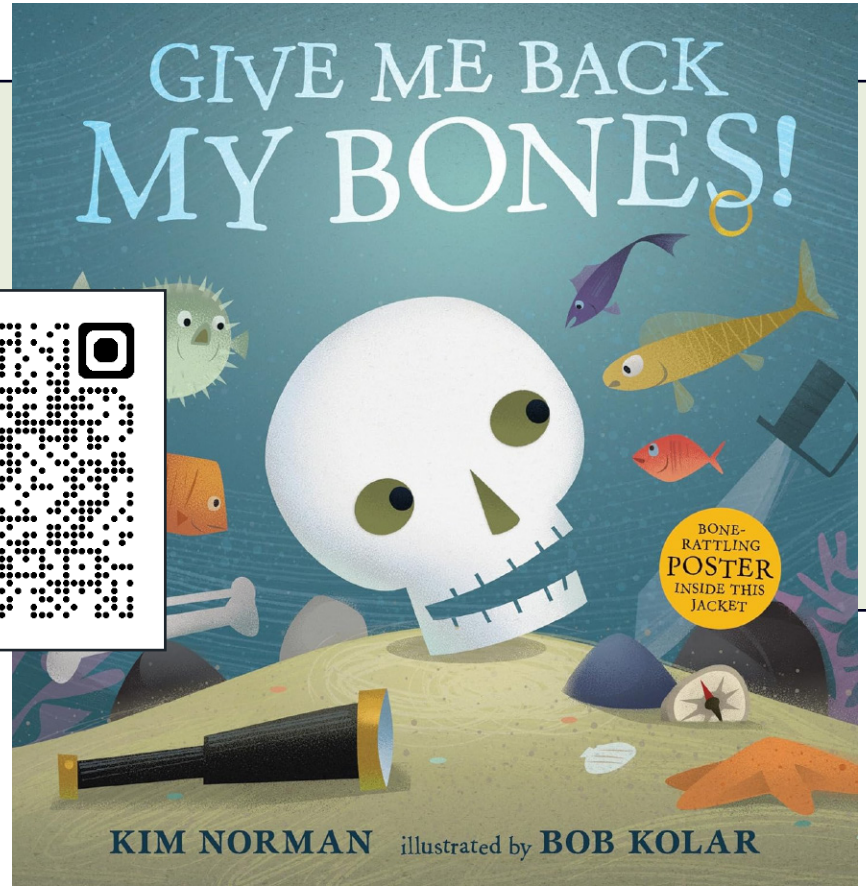
# Let's watch

Identifying & classifying

Listen to the story,

**Give me back my bones!**

by Kim Norman




Listen out for the **names** of different bones we can find in our skeleton. **How many can you spot?**

Be ready to **share your feedback** with the class.

https://www.youtube.com/watch?v=iqrQRsFDDBc

# Activity 1

Identifying & classifying



We are going to play a **'Brilliant bones' memory game**! In small groups, race to match each bone's **name** and **story description** with its **picture**. Listen to the **instructions** before you play!

| | | | |
|---|---|---|---|
|  | **skull**<br>pillowed-on-the-bed bone |  | **pelvis**<br>haul-a-heavy-sack bones |
|  | **jaw**<br>chicken-chomping saw bone |  | **spine**<br>strung-up-in-a-stack bones |
|  | **ribcage**<br>centre-of-my-chest bone |  | **femur**<br>top-of-leggy high bones |

Grammarsaurus

## Activity 1
## 'Brilliant bones' memory game

This is a game for 2 or 3 players.

The aim of the game is to find pairs that match the diagram of the bone with the label.

1. Place all the cards face down in either a random pattern or a more organised way (for example, the diagram cards face down on one side and the label cards on the other).
2. The first player turns over a picture card and a label card. If they match, they keep the pair and have another go. If the pairs don't match, it is the next player's turn.
3. Play continues until all the cards are matched.
4. The winner is the player with the most pairs.

If the cards do not match, turn them back over in the same place. As well as improving your knowledge of the bones in the body, this game is also a memory game!

Grammarsaurus

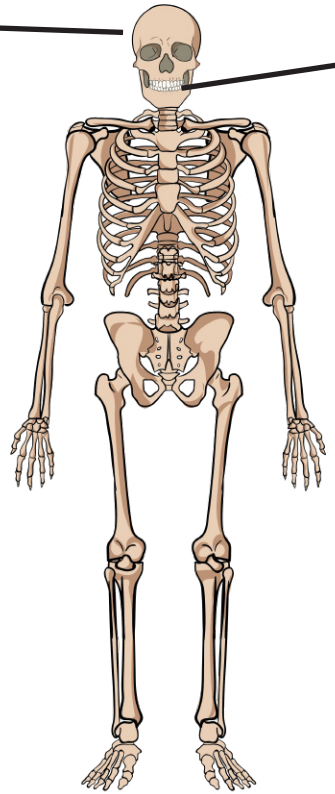
# Skull and jaw

Each bone in the human skeleton has a **different name**. We are going to learn the names of **six** of them.

## skull



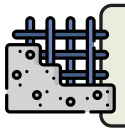
- **protects** your brain
- **supports** nose and eyes



## jaw



- part of the skull
- the lower jaw is the only skull bone that **moves** when you chew or talk



**support**



**protection**



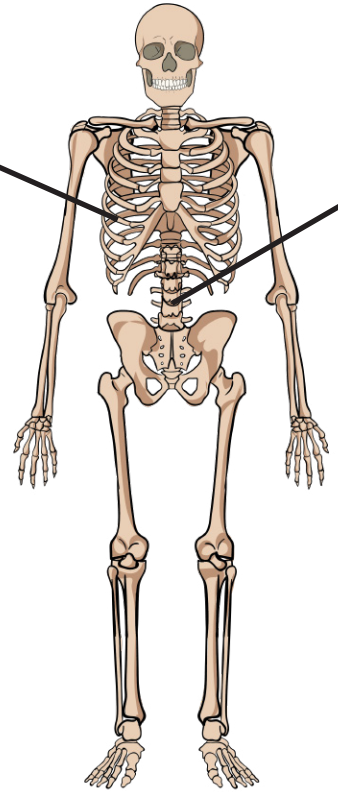
**movement**

# Ribcage and spine

## ribcage



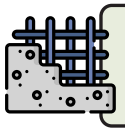
- **protects** the heart and lungs
- ribs **move** when you breathe in and out



## spine



- the body's main **support** – it holds you up
- it helps you **move**, bend and twist
- **protects** the spinal cord



**support**



**protection**



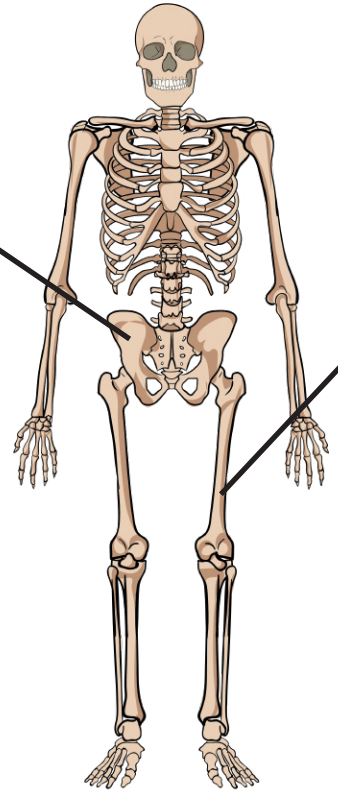
**movement**

# Pelvis and femur

## pelvis



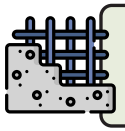
- **supports** the body and holds you up
- **protects** the organs



## femur



- **supports** the body
- helps you **move**



**support**



**protection**



**movement**

# I feel it in my bones!



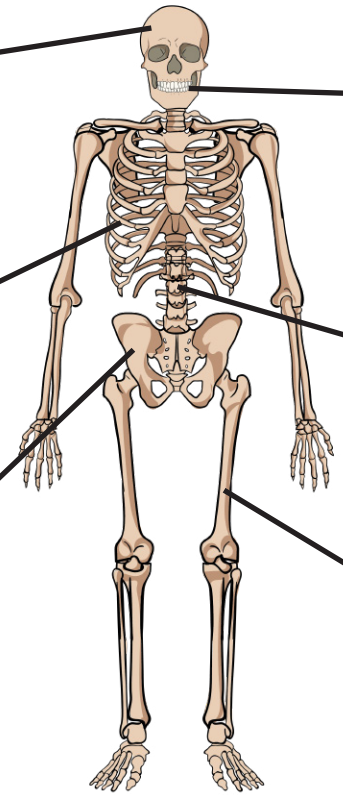
**Listen** to your teacher.

When they say the name of a bone, do the **action** that matches.

**skull**
cup hands around your head, like a protective helmet

**ribcage**
take big breaths in and out, feel your ribcage protecting your lungs

**pelvis**
stand tall on one leg



**jaw bone**
pretend to chew

**spine**
twist from side to side

**femur**
march on the spot with high knees, tapping your thighs

# Activity 2

Identifying & classifying

Recording data

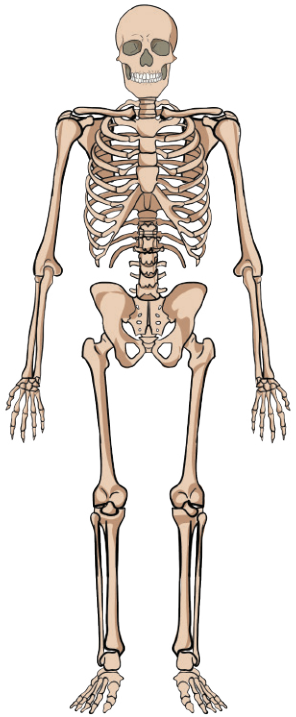


Label the different **bones** that we have learnt about today on your **activity 2 worksheet**.

Be ready to **share your *feedback*** with the class before the **answers** are revealed.

## Activity 2

Label the bones of the human skeleton. Use the word bank to help you.



**Word bank:**

ribcage, skull, femur, jaw, pelvis, spine

Grammarsaurus

# Activity 2

answers

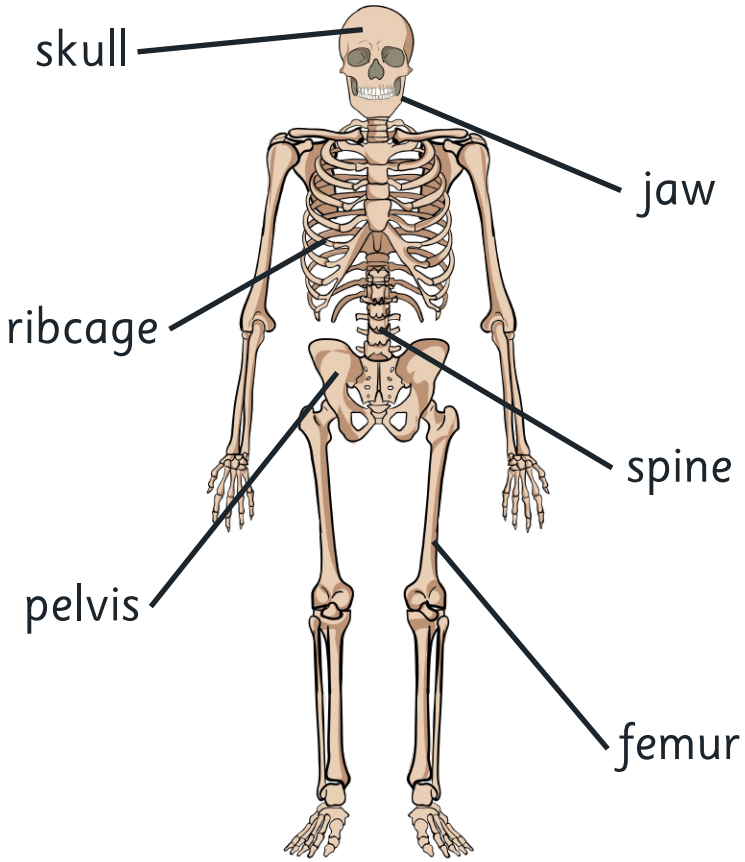
Identifying & classifying

Here are some facts about the skeleton that you might not know…

The spine is made up of **24 bones** called **vertebrae**.

The **smallest bone** in the body is the **stapes** which is in your **inner ear**.

An adult foot contains **26 bones**.




The **largest bone** in the body is the **femur** or **thigh-bone**.

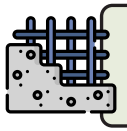
The **spine** is sometimes called the **backbone**.

Most adults have **24 ribs – 12** on each side.

**Did you label the skeleton correctly?**

# Let's recap

Identifying & classifying



**support**



**protection**

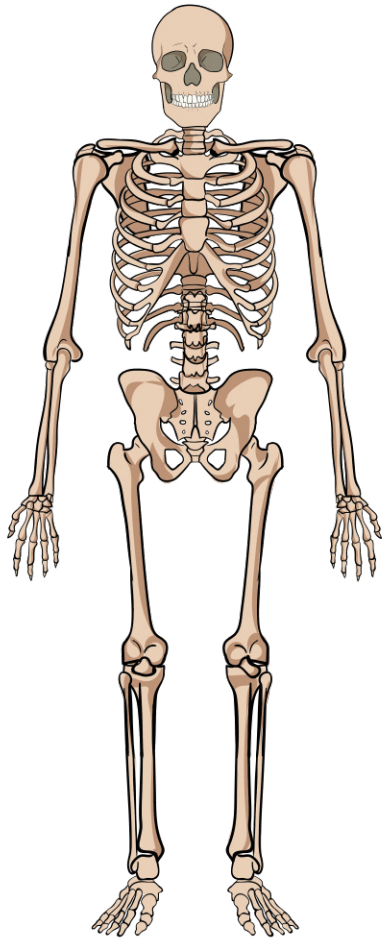


**movement**

**Skeletons** help **support** our bodies. Without our skeleton structure, we would be ***floppy***.

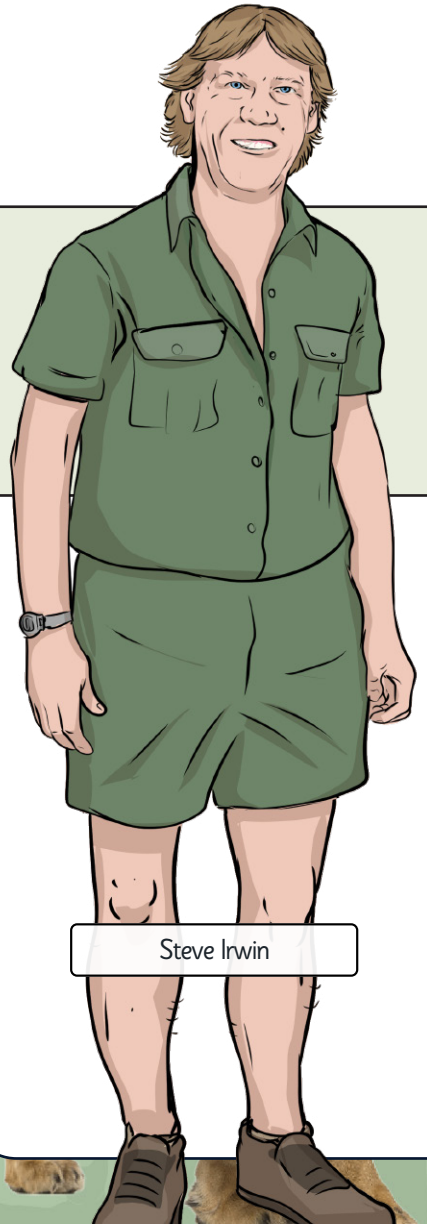
Skeletons **protect** us too! They protect all the **important organs** we have inside us. The skull protects the brain, and the ribcage protects the heart.

Skeletons also help us to **move**. Without our skeleton, we would **not be able to stand** or **move** all the different parts of our body.



# Challenge

Identifying & classifying



Steve Irwin

**Discuss** the following questions with your **learning partner**.

Which **bone** do you think is the **most important** in the human skeleton? **Why**?

Be ready to **share your feedback** with the class before the **answers** are revealed.

Use the following sentence starter to help you:

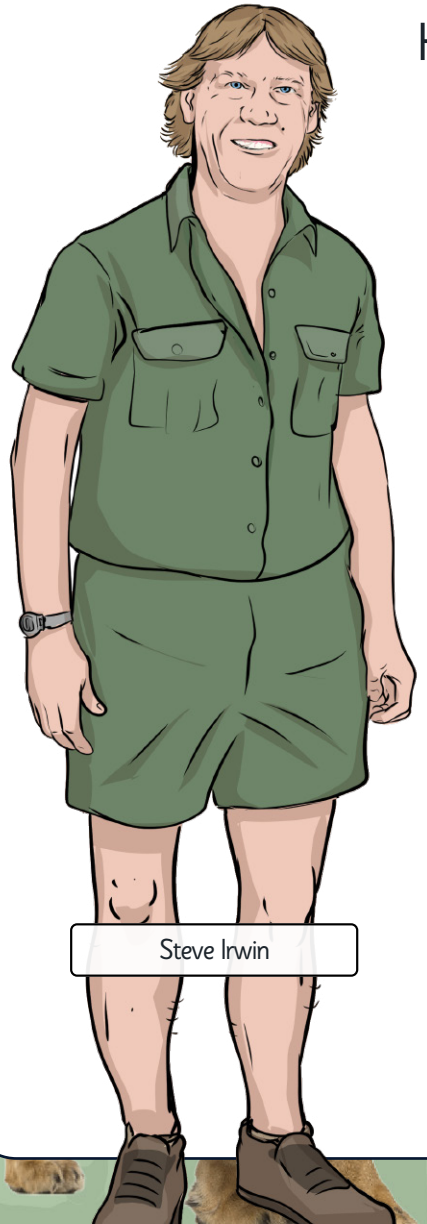
**"I think the _____ is the most important bone because..."**



Marie Curie

# Challenge

answers




Here are a few possible answers with reasons that you might have given. You may have a different answer – just make sure you have a scientific reason to back it up!

| Bone | Reason |
|---|---|
| skull | The skull is important because it protects the brain. The brain controls our body. |
| ribcage | The ribcage is important because it protects the heart and lungs. The heart pumps blood around the body and keeps us alive. |
| femur | The femur is important because it is a large bone in the leg which helps us move. |

