



Organ Systems



Organs to Organ Systems

- We are organised as follows:

Smallest: Cells > Tissues > Organs > Organ Systems

- Organs are grouped together in organ systems to carry out a specific function for our bodies.

Skeletal System	Muscular System	Digestive System
Protects organs, provides support and helps you move	Muscles contract and relax to allow for movement	Breaks down food so nutrients can be absorbed into the blood
Respiratory System	Nervous System	Circulatory System
Takes in oxygen and removes carbon dioxide	Responds to our environment. Electrical signals are sent through nerve cells.	Transports substances such as oxygen around the body



Skeletal System



Muscular System



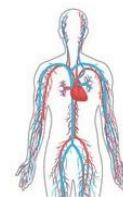
Digestive System



Respiratory System



Nervous System



Circulatory System

Respiratory System

We breathe in oxygen so it can be transported to our cells for respiration.

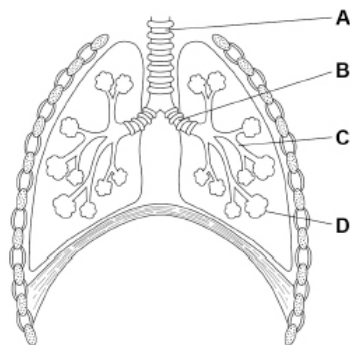
Organ Names

A: Trachea

B: Bronchi

C: Bronchioles

D: Alveoli



Alveoli are tiny air sacs where O_2 is exchanged into the blood for CO_2 . They are adapted by:

- Having a large surface area
- Large network of blood capillaries
- Thin walls between them and the blood vessels
- There are lots of them

Digestive System

Large molecules like protein need to be broken down during digestion so it can be absorbed into the blood.

Organ Names

A: Oesophagus

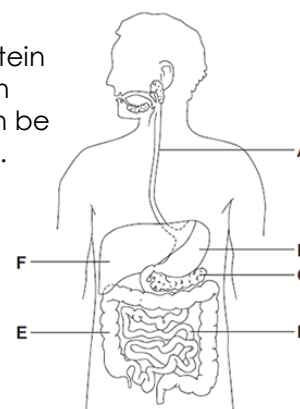
B: Stomach

C: Pancreas

D: Small Intestine

E: Large Intestine

F: Liver



Once broken down, nutrients are absorbed through the small intestine into the blood stream to be transported around the body.

Skeletal System

Your skeleton helps you move, provides support and protects vital organs. For example:

- Skull protects brain
- Spine protects spinal cord
- Ribcage protects the lungs and heart



Skeletal System

Muscular System

Muscles work in pairs.

They allow our bones to move by **contracting** and **relaxing**.



Muscular System

Endocrine System

This system sends messages to your organs by releasing hormones from **glands**.

Hormones are chemical messages sent through the blood stream.

Here are some key examples:

- When blood sugar is too high, your **pancreas** releases the hormone **insulin**
- In males, the **testes** release the hormone **testosterone**
- In females, the **ovaries** release the hormone **oestrogen**

Plant Organ Systems

Plants use CO_2 and water to do a reaction called **photosynthesis**. This helps them grow.

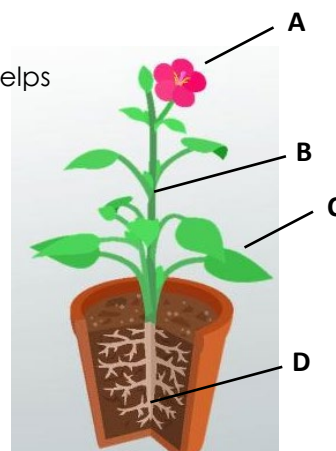
Organ Names and Functions

A: Flower - reproduction

B: Stem - Transport water and other substances through the plant

C: Leaves - where photosynthesis takes place

D: Roots - absorb water and minerals from the soil.





CORE Questions



The following are core questions for this topic. Cover the answer section with a sheet of paper and try and quiz yourself. Only try learning 5 at a time, once you know them move on.

1	Which organ system breaks down food so it can be absorbed into the body?	Digestive system
2	Which organ system transports substances around the body?	Circulatory system
3	Which organ system takes in oxygen and removes carbon dioxide?	Respiratory System
4	Which organ system responds to our environment?	Nervous system
5	What is the function of the digestive system?	To break down large food molecules into smaller molecules which can be absorbed into the blood stream.
6	True or False. Digestive juices are released to make food molecules larger.	False. They help break down food molecules.
7	Which intestine absorbs the nutrients that have been broken down in the stomach?	Small Intestine
8	Which organ produces the digestive juices which are mixed with acid in the stomach?	Pancreas
9	How are the villi in the small intestine adapted to absorb more nutrients?	They have a large surface area.
10	What is the function of the respiratory system?	To absorb oxygen into the body and remove carbon dioxide from the body.
11	What are the tiny air sacs in the lungs called?	Alveoli
12	Suggest why the alveoli are one cell thick.	Absorb oxygen quicker.
13	How are the alveoli adapted to absorb oxygen?	One cell thick, large surface area, connected to lots of blood vessels
14	A student measured their lung volume three times and got the results: 800ml, 805ml and 799ml. State the resolution of their measuring device.	1 ml
15	A student measured their lung volume three times and got the results: 800ml, 900ml and 700ml. State the resolution of their measuring device.	100 ml
16	What process allows large concentrations of oxygen to pass into the blood stream?	Diffusion
17	Name the bone that protects the brain.	Skull
18	Name the bones that protect the spinal cord.	Spine
19	Name the bones that protect the lungs and heart.	Ribcage
20	Name the bones that protect the heart.	Ribcage
21	Describe the three functions of the skeleton.	Protect organs, help body move, provide support
22	What type of cells are produced in a bone marrow?	Blood cells
23	Explain how muscles allow our bones to move.	Muscles contract and relax to allow bones to move
24	Name the two components of the central nervous system.	Brain and Spinal Cord
25	Which part of the central nervous system does information reach first?	Spinal Cord
26	Describe how messages are sent through nerve cells	As electrical impulses
27	An experiment tests the reaction time of a young man and an old man. Explain why it is difficult to make conclusions from the results.	The sample size is too small so it does not control any variables which may affect the results.
28	What is a hormone?	A chemical message sent through the blood stream
29	What part of the body releases hormones?	Glands
30	Name the gland and the hormone released by the gland when blood sugar is too high.	Gland: Pancreas Hormone: Insulin
31	Name the sex hormone for males and gland which releases it.	Hormone: Testosterone Gland: Testes
32	Name the sex hormone for females and gland which releases it.	Hormone: Oestrogen Gland: Ovaries
33	What is the function of leaves for plants?	Carry out photosynthesis to make glucose for the plant
34	What is the function of roots for plants?	Absorb water and minerals
35	What is the function of the stem for plants?	Transport water and minerals
36	How are roots adapted to do their job?	They have a large surface area.