In this presentation you will:
- explore the levels of organization in plants and animals
The Cell

Cells are often described as the **building blocks** of life.

This is because all living things are made up of one or more cells. All processes needed for life take place in cells.

Cells are **microscopic**, which means that they are so tiny we cannot see them without a microscope.
Cells have structure which is its body plan.

Cells also have function which is its job or the process it carries out.
Within larger, complex organisms (multicellular organisms) such as plants and animals, cells working alone are not much use.

Individual cells work at the lowest level of a biological system.

They work together in higher and higher levels of organization, like a team, sharing out the jobs that need doing to support the organism and keep it alive.
Question 1

Which level of a biological system do you think is most important?

A) Individual cells like those that make up the tissue of the heart

B) Tissue like heart tissue that makes the heart organ

C) Organs like the heart

D) All levels are equally important. If one level fails the whole system could fail.
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Think of a workplace. **Individual** people group together to form a **team**.

Groups of teams make a **department**.

Groups of departments form a **company**.
Organization

If the people do not work together, the company may not survive.

In the same way, if any level in a biological system fails, the organism may not survive.
Levels of Organization

In multicellular organisms, different levels of organization can be seen:

- **Cells** – the most basic unit of living things.

- **Tissues** – made up of groups of cells that carry out the same function.

- **Organs** – groups of tissue that work together to do a specific job.
Levels of Organization

- **Organ systems** – a group of organs that work together to do a job.

- **Organism** – a living structure made up of organ systems that can live, grow and reproduce.
Question 2

What is the lowest level of a biological system?

A) Individual cells
B) Tissue
C) Organs
D) An organism
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A) Individual cells
Tissue Types

Groups of similar cells that work in the same way, group together to form tissue. There are four different types of tissue found in animals. They are:

- **Epithelial tissue** – covers the outside of the body and lines organs and cavities such as the stomach.

- **Connective tissue** – holds organs in place, and supports and binds other tissues.
Tissue Types

- **Nervous tissue** – carries information to and from the nervous system and brain.

- **Muscle tissue** – made of cells that are capable of contracting and relaxing to produce movement.

The different tissues work together to form an **organ**.

The stomach, shown here, uses all four types in order to work properly to digest our food.
Levels of Organization

In a human organization:

- **cells** join together to make **tissue**

- different tissue types group together

- groups of tissue work together to make the stomach, an **organ**.
Levels of Organization

The stomach works together with other organs such as the intestines to create the digestive system, which is an organ system.

Organ systems work together to produce and support an organism.
Question 3

In the human body, organs work together to form:

A) an organism
B) organ systems
C) organs
D) cells
Question 3

In the human body, organs work together to form:

A) an organism

B) organ systems

C) organs

D) cells

[Correct Answer: B]
Summary

In this presentation you have seen:

- the levels of organization in biological systems
- how the levels relate to each other and the whole