



Stem Cells

Understanding Stem Cells:

What is a stem cell?

Why are stem cells described as 'undifferentiated'?

What does it mean for a stem cell to have differentiated?

Functions of Stem Cells

Type of Stem Cell

Embryonic



Adult



Meristem Cells



Match the type of stem cell to its function

Function

Found in bone marrow and can form various types of blood cells.

Can be cloned and made to differentiate into most types of human cells

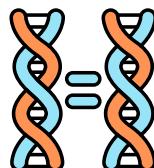
Can differentiate into any type of plant cell and help the plant grow continuously

Where are stem cells found in the human body?

What special ability do meristem cells in plants have?

Uses of Stem Cells

Therapeutic cloning



A cloned embryo shares the same genes as the patient so cells are less likely to be _____

Medical Treatments



Have been used for treatments for:
• _____ by replacing insulin-producing beta cells
• _____ by helping spinal cord repair

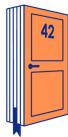
Agriculture and Conservation

Prevent extinction

Clone _____ plant species to produce many _____ plants



Clone plants with desirable _____, to increase yields.



Stem Cells

Risks, Benefits and Ethical Issues

Benefits	Risks	Ethical and Social Considerations



Debate

Imagine you are preparing to take part in a debate on the use of stem cells for medical treatments. Prepare two points to argue in favour of using stem cells and two points against their use.

In favour:

Against:

Consider the benefits and risks of stem cell treatments. Write a short paragraph evaluating whether you think the benefits of stem cell treatments outweigh the risks and ethical concerns.
