



LESSON 2: STEM CELLS IN MEDICINE



Age: Key Stage 4

Duration: 60 minutes

Resources: Stem cells in medicine presentation
Future of Science information sheet
Stem cell types diagram
Stem cell table
Stem cell Venn diagram



View/download film &
other resources

Overview: This lesson builds on students' knowledge of embryonic and adult stem cells and offers an opportunity to apply this knowledge to real-life cutting-edge medical research. Can be used to extend or embed learning or as a revision exercise.

LEARNING OBJECTIVES

Describe and explain how different types of stem cells are used in medicine
Explain some of the clinical, ethical and social issues associated with stem cells

STARTER

Students suggest the connection between the four images on slide 1 of the *Stem cells in medicine* presentation. Recap details of embryonic and adult stem cells (where they are found, what they can do, what they are used for, any problems associated with their use, etc.).

The brain organoid and the mini beating heart are examples of cutting-edge medical research carried out using stem cells.

Show students *The Future of Science* film which explains these examples in more detail.

Suggested follow-up questions:

- Was there anything in this film that surprised you?
- What did you think was the most important message from the film?

MAIN

1. Using their prior knowledge along with the *Future of Science* film and *information sheet*, students add the labels to the *Stem cells diagram*. Show correct answers on slide 5 for students to self-assess.

2. Students use their prior knowledge along with the *Future of Science film* and *information sheet*, to complete the differentiated *Stem cells table*. Show answers on slide 9 for students to self-assess and correct.

Suggested follow-up questions:

- Name three different types of stem cells.
- Describe two ways in which stem cells are already used.
- Suggest one way that stem cells could be used in the future.
- Explain why some people are against using stem cells.

PLENARY

Print the *Venn diagram* on A3 paper for students to work in groups of 2-3 to place each statement into the correct section of the Venn diagram. Encourage them to think of their own statements to add.

Follow-up discussion points:

- Which of these do you think is the most important?
- If you had £10 billion to invest into stem cell research, how would you invest it and why?