Objective: Understand the therapeutic value of stem cells
(Scottish curriculum: Higher biology Unit 1: the molecular biology of medicine; 2dii)

About tissue stem cells
Stem cells are one of the most amazing types of cells because they can (1) make copies of themselves and (2) make specialized cells like skin cells, red blood cells or liver cells.

1. We need stem cells in our body. What would happen to you if you didn’t have stem cells?

Tissue stem cells have the potential to make several types of specialized cells, but not all. For example blood stem cells can make all the different types of cells in your blood, but they can’t make skin cells.

2. Add the following labels to the diagram:
a. specialized cells in blood; b. blood stem cell; c. make copies; d. bone marrow.
Therapeutic value of stem cells

3. Read the article in the Scotland on Sunday.

Scientists study stem cells for many reasons, for example to better understand the cell cycle and to develop and test new ways to treat patients.

4. Give one more reason why Dr Tilo Kunath is doing this research.

In 2006, scientists discovered a new technique. They can now take a cell from a body, for example a skin cell, and turn it into a cell that behaves like stem cells from an embryo.

5. What are these special types of cells called?

6. Why is Dr Tilo Kunath keen to use this technique to study Parkinson’s?