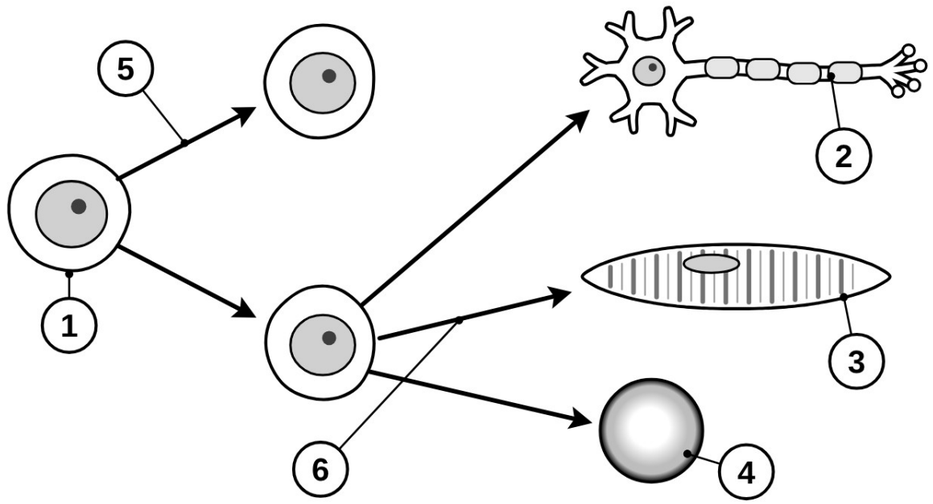
B1 L7 Mandatory worksheet: Stem cells

Name: _____ Class: _____

A. Label the diagram

Help: online screen 3 [6]

The diagram shows a stem cell and some of the cells it can become. Write the name of each numbered cell or process on its line.



1 _____ **4** _____

2 _____ **5** _____

3 _____ **6** _____

B. Fill in the gaps

Help: online screens 1, 3 and 4 [6]

Use words from the box. Use each word once at most. Two words are not needed.

undifferentiated	**divide**	**differentiate**	**embryos**
bone marrow	**meristems**	**specialised**	**leaves**

A stem cell is an _____ cell: it is not yet specialised.

Stem cells can _____ to make many more cells of the same type.

They can also _____ into other types of cell.

In humans, stem cells are found in early _____ and in adult _____.

In plants, stem cells are found in _____ at the tips of roots and shoots.

C. Which stem cells?

Help: online screens 4, 6 and 10 [6]

Tick (✓) one box in each row.

Statement	Embryo	Adult bone marrow	Plant meristem
1. Can become most types of human cell.			
2. Make new red and white blood cells.			
3. Found at the tips of roots and shoots.			
4. Can become any type of plant cell.			
5. Used to treat some blood disorders.			
6. Taking them destroys an early embryo.			

B1 L7 Mandatory worksheet: Stem cells

Name: _____ Class: _____

D. Short answers

Help: online screens 7, 9, 10 and 11 [9]

1. Name one condition that stem cells may be able to help in the future. [1]

_____

2. Give one risk to a patient who is given stem cells from another person. [1]

_____

3. Doctors could use therapeutic cloning to make stem cells for a patient.

(a) What is special about the genes of the embryo that is produced? [1]

_____

(b) Why does this mean the stem cells are not rejected by the patient's body? [1]

_____

4. Give one reason why some people object to using embryos to get stem cells. [1]

_____

5. Name the plant tissue that growers use to clone plants. [1]

_____

6. Give **two** reasons why growers clone plants from meristems. [2]

_____

_____

7. Stem cells may be able to help people with paralysis. Why does the sentence say “may”? [1]

_____

E. Seeds or clones?

Help: online screen 7 [4]

A grower has two groups of a crop plant.

Group A: 240 plants grown from seeds. 60 of them have a useful feature: they resist a disease.

Group B: 240 clones made from meristem cells of one plant that has the feature. All 240 have the feature.

(a) Calculate the percentage of plants in group A that have the useful feature.

Use: percentage = number with the feature ÷ total number × 100 [2]

Working:

_____ %

(b) Explain why all the plants in group B have the useful feature. [2]

_____

_____

F. Explain

Help: online screen 6 [3]

A patient has leukaemia, a blood disorder. Doctors give the patient a bone marrow transplant from a donor. Explain how the transplant can help the patient. [3]

_____

_____

_____

_____