

## Stem Cells

1. State the definition of a stem cell.

---

---

---

2. Describe where stem cells can be found.

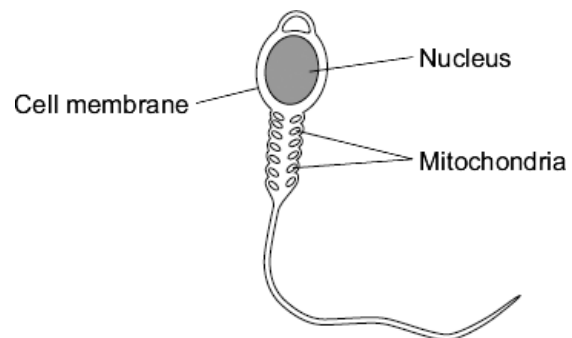
---

---

---

3. Cells in the human body are specialised to carry out their particular function.

The diagram shows a sperm cell.



- a. Describe and explain how the sperm cell is adapted for its function.

---

---

---

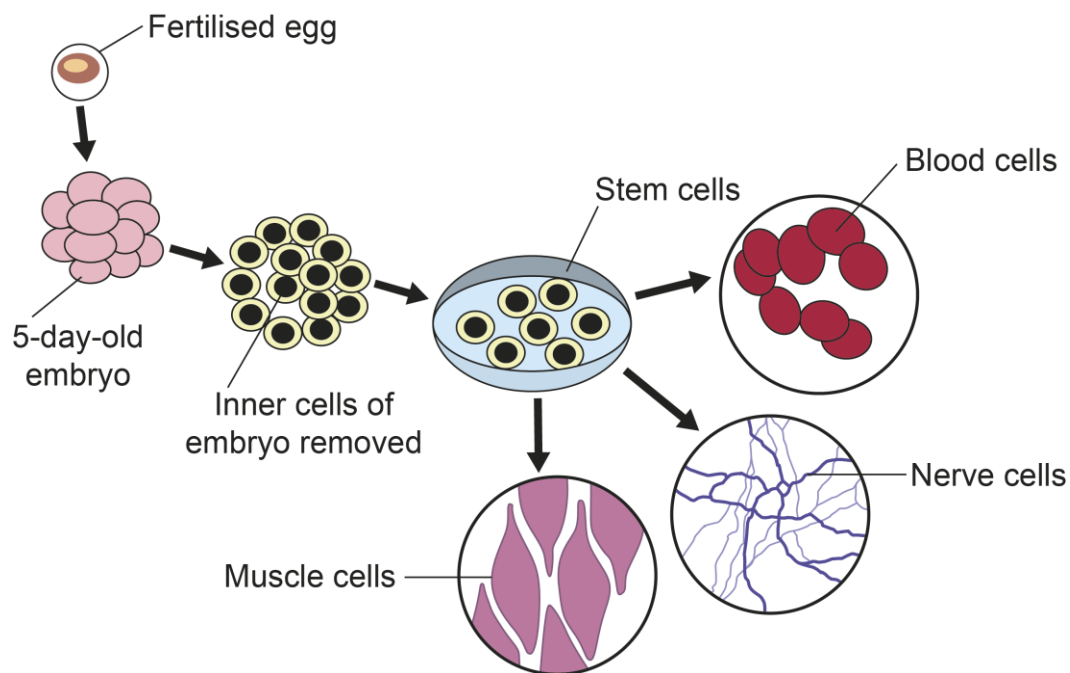
- b. Describe how the nucleus of the sperm cell is different to the nucleus of a body cell.

---

---

---

The diagram shows one way that stem cells can be produced from human embryos.



- c. Embryonic stem cells can be used to treat a condition such as paralysis. Explain why.

---

---

---

- d. During pregnancy, an umbilical cord and a placenta join the embryo to the mother. At birth the umbilical cord is cut. Stem cells can be obtained from the umbilical cord.

Many people think that the stem cells for treating human conditions should be obtained from umbilical cords rather than human embryos.

Suggest a reason why.

---

---

---



4. Meristems can be used to clone plants that are at risk of extinction. Explain why this may be important for ecosystems.

---

---

---

5. Complete the table to show the advantages and disadvantages of embryonic stem cells and adult bone marrow stem cells.

	Advantages	Disadvantages
Embryonic Stem Cells		
Adult Bone Marrow Stem Cells		

Stretch Activity:

During George W. Bush's Presidency of the United States embryonic stem cell research was prohibited. Discuss the possible effects of this on Scientific research.