

**GCSE Biology B (Twenty First Century Science)**  
**J257/01** Breadth in Biology (Foundation)

**Question Set 5**

Multiple Choice Questions

1. (a) Jane's dog has arthritis in its hip joint. This makes the joint stiff and painful.

Jane reads an article in a magazine. Here is the article's headline:

**Stem cell therapy to help dogs with arthritis**

(i) Explain what a stem cell is and why they are used in medicine.

Stem cells are unspecialised so can be specialised by differentiation into the cells needed. [2]

(ii) The article explains that stem cells were removed from a dog's fat tissues and were then grown in a laboratory.

Explain why a vet would have used aseptic techniques when growing the stem cells. [1]

To reduce risk of contamination.

(iii) Which of the following are also sources of stem

cells? Tick (✓) two boxes.

Bone marrow	✓	<input checked="" type="checkbox"/>
Embryos	✓	<input checked="" type="checkbox"/>
Hair		<input type="checkbox"/>
Nerve cells		<input type="checkbox"/>
Red blood cells		<input type="checkbox"/>

[2]

(iv) The use of stem cells in veterinary medicine is increasing but there are no peer reviewed case studies.

Describe the peer review process and explain why peer review is important. [2]

Results are looked at by other scientists working in the field to ensure their findings are valid and accurate. (confirms their findings)

(b) Dogs have 78 chromosomes.

Complete the table to show the number of chromosomes in different cells of a dog.

Cell	Number of chromosomes
Nerve	78
Skin	78
Sperm	39

[2]

**Total Marks for Question Set 5: 9**

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