

Full Higher Separate content. ★ = Higher Tier. ◆ = Separate Science only.

★ HIGHER TIER

Q1. ★ Describe adult cell cloning. Use the example of Dolly the sheep.

[4 marks]

★ HIGHER TIER

Q2. ★ Suggest ONE advantage and ONE disadvantage of cloning animals.

[2 marks]

Total: 6 marks

Q1 (4 marks) [★ HT]

★ Describe adult cell cloning. Use the example of Dolly the sheep.

- Nucleus removed from donor body cell [1]
- Nucleus inserted into enucleated egg cell [1]
- Embryo stimulated to develop [1]
- Implanted in surrogate mother → lamb born with identical DNA to nucleus donor (Dolly) [1]

Q2 (2 marks) [★ HT]

★ Suggest ONE advantage and ONE disadvantage of cloning animals.

- Advantage: preserve endangered species / produce animals with desired traits [1]
- Disadvantage: reduced genetic diversity; ethical concerns; low success rate; premature ageing [1]