

Foundation Separate version — Higher Tier (★) questions removed.

Q1. Explain why meiosis is essential for sexual reproduction. Describe how it generates variation.

[4 marks]

Total: 4 marks

Q1 (4 marks)

Explain why meiosis is essential for sexual reproduction. Describe how it generates variat...

- Produces haploid gametes (23 chromosomes) — fertilisation restores diploid (46) [1]
- Crossing over: DNA exchanged between homologous chromosomes → new allele combinations [1]
- Independent assortment: random distribution of chromosomes → unique gametes [1]
- Combined with fertilisation → offspring are genetically unique [1]