

Solutions

2.1 A Complementary bases support copying of the template sequence. Distinguish DNA copying from transcription into RNA and from separation of chromosomes in cell division. The labelled-strand prediction assumes complete replication rounds and no exchange or degradation of the original material. Detailed fork direction and fragment mechanisms remain in the separate HL preparation case pending guide review.

2.2 After 3 complete rounds there are $2^3 = 8$ molecules. Two retain original strands; $2/8 \times 100 = 25\%$.

2.3 False. Replication uses DNA as a template to make DNA; transcription uses a DNA template to make RNA. A predicted label distribution assumes complete rounds and no degradation or exchange of the labelled material.

2.4 semi-conservative replication. semi-conservative replication means DNA copying in which each daughter double helix retains one parental strand.

3.1 Two original strands persist among 16 molecules: $1/8 = 12.5\%$. Templates are retained while new strands are synthesized; assume no degradation or strand exchange. This does not require unsupported SL fork detail.