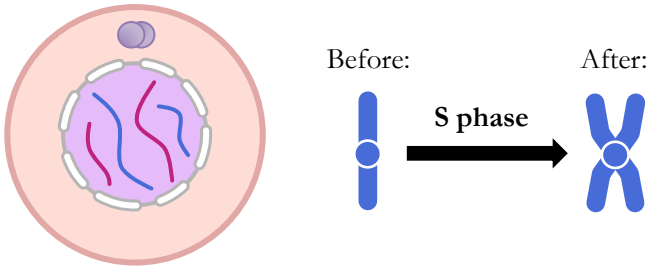
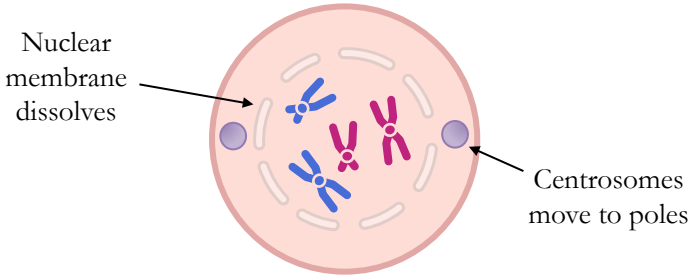
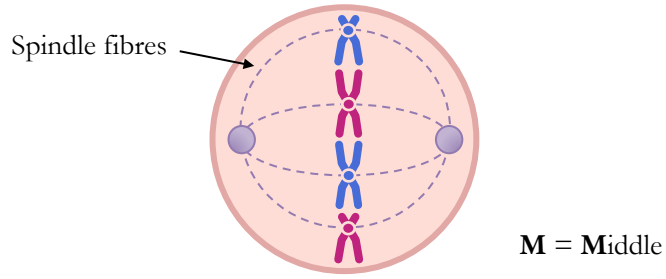
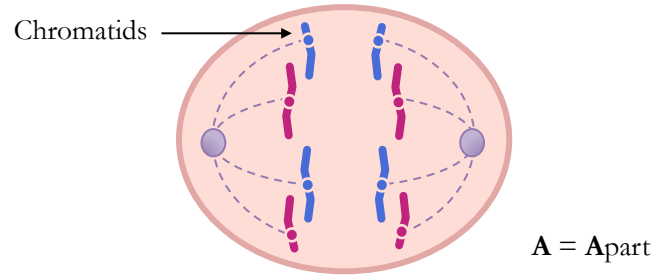
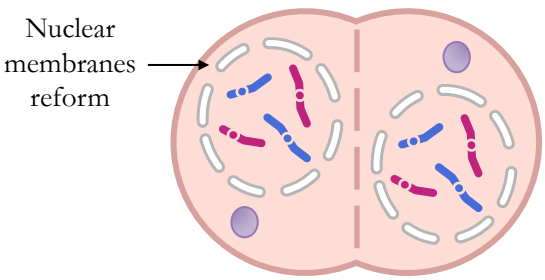
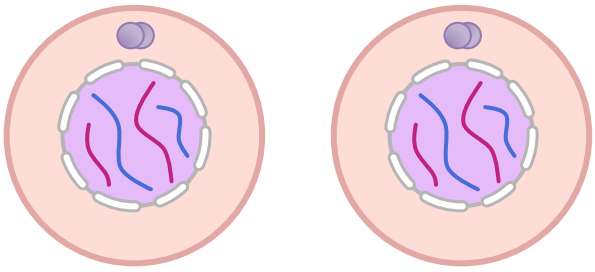
TOPIC 1.6: STAGES OF MITOSIS

Stage	Diagram	Key Events
Interphase (2n)		• DNA is uncondensed (chromatin) • DNA is replicated (S phase) to form genetically identical sister chromatids • Cell grows in size and organelles are duplicated (G_1 and G_2)
Prophase (2n)		• DNA supercoils and condenses (forms visible chromosomes) • Nuclear membrane dissolves • Centrosomes move to poles and begin to produce spindle fibres
Metaphase (2n)		• Centrosome spindle fibres attach to the centromere of each chromosome • Spindle fibres contract and move the chromosomes towards the cell centre • Chromosomes form a line along the equator (middle) of the cell
Anaphase (2n → 4n)		• Spindle fibres continue to contract • Sister chromatids separate and move to opposite sides of the cell • Sister chromatids are now regarded as two separate chromosomes
Telophase (4n)		• Chromosomes decondense (DNA forms chromatin) • Nuclear membranes form around the two identical chromosome sets • Cytokinesis occurs concurrently
Cytokinesis (2n × 2)		• Cytoplasmic division occurs to divide the cell into two daughter cells • Each daughter cell contains one copy of each identical sister chromatid • Daughter cells are genetically identical