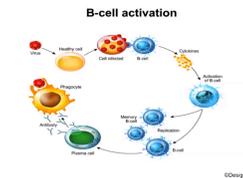


Unit 4: Cell Communication and Cell Cycle (10 - 15% AP Exam Weighting)	Essential Knowledge & key terms	Resources
Topic 4.1 Cell Communication	Describe the ways cells communicate with one another; explain how cells communicate over long and short distances; target cell e.g. 1 B-cell activation (cell-to-cell contact) e.g. 2 neurotransmitters	<p>Topic 4.1 (5 minutes)</p>  <p>The diagram, titled 'B-cell activation', illustrates the interaction between a T-helper cell and a B cell. The T-helper cell releases cytokines that bind to receptors on the B cell, leading to its activation. The activated B cell then produces antibodies, which are shown binding to antigens. The diagram also shows the B cell interacting with a dendritic cell and a macrophage, which are part of the immune response.</p>
Topic 4.2 Introduction to Signal Transduction	Protein modification and phosphorylation; ligand, G protein-coupled receptors; signaling cascades, cyclic AMP; ligand-to-ligand channels	<p>Topic 4.2 (9 minutes)</p>
Topic 4.3 Signal Transduction Pathways	Describe the role of the environment in eliciting a cellular response Describe the different types of cellular responses elicited by a signal transduction pathway	<p>Topic 4.3 (5 minutes)</p>
Topic 4.4 Changes in signal transduction pathways	How can changes in the structure of any signaling molecule affect the activity of the signaling pathway	<p>Topic 4.4 (6 minutes)</p>
Topic 4.5 Feedback	Explain negative and positive feedback, and how they impact homeostasis	<p>Topic 4.5 (6 minutes)</p>
Topic 4.6 Cell Cycle	Cell Cycle: Interphase (G1, S, G2), mitosis (PMAT), cytokinesis	<p>Topic 4.6 (6 minutes)</p>
Topic 4.7 Regulation of the Cell Cycle	Describe the role of checkpoints in the cell cycle; Describe the effect of disruptions to the cell cycle	<p>Topic 4.7 (8 minutes)</p>
Progress Check		