AP Biology
Student Learning Plan
Cell Division Unit 5 - 9 Days
Math skills: Volume of a sphere, Volume of a rectangular solid, Volume of a right cylinder, and Surface area of a square

Day/Date	Topic/Objectives	Support
Day 1	Introduction ☐ Explain why maintaining a low surface area to volume ratio is beneficial for cells in terms of waste elimination and transportation of resources ☐ Calculate surface area and volume for regular geometric shapes and predict which shapes will best facilitate diffusion ☐ Explain how surface area and volume change as cells grow. ☐ Describe the benefits of mitosis for surface area and volume issues in the cell ☐ Describe how microvilli help increase surface area and facilitate diffusion ☐	10.1
Day 2	☐ Describe the events of the cell cycle ☐ Identify observable features during replication, alignment and separation ☐ Explain how DNA is transmitted to new cells during mitosis ☐ Describe the packaging of DNA for mitosis ☐ Model the process of mitosis visually ☐ Describe the end result of mitosis ☐ Explain the role of mitosis in asexual reproduction	10.2-3
Day 3	☐ Explain the role of programmed cell death in human development and maintenance of homeostasis (apoptosis and morphogenesis) ☐ What signals does the cell send that control the cell cycle. ☐ What are the results of failure of the cell to control the cell cycle	10.3-4
Day 4	☐ Explain how new information is transmitted to the gametes during meiosis ☐ Describe how the process of meiosis along with fertalization maintains a stable chromosome number from one generation to the next ☐ Describe the events during meiosis that increase genetic diversity ☐ Describe the results of mutation during development ☐ Describe the strategies that organisms use respond to energy availability during reproduction ☐ Explain the role of apoptosis in normal development	10.5
Day 5	☐ Explain how cells with identical sets of DNA can carry out vastly different functions ☐ What is the role of gene expression in cell specialization	10.6

	☐ Describe how cell to cell interactions help control gene expression. ☐ Describe the conservation of developmental gene sequences across species (ex: HOX genes) ☐ Describe the effect of changes in developmental gene sequences	
Day 6	☐ Explain the significance of meiosis for evolution	11.1-11.4
Day 7	☐ Explain the timing and coordination of events in normal human development ☐ Describe the control mechanisms important in normal human development	54.1-2
Day 8	Review	
Day 9	Test	