

Content/Academic Language						
FLDOE	asexual reproduction binary fission** chromosome	cleavage DNA eukaryote	gamete haploid meiosis	mitosis nucleus prokaryote	sexual reproduction spore**	
Other	cell cycle cell plate chromatid	cleavage furrow crossing over cytokinesis	diploid genetic variation homologous	independent assortment interphase		

Topic 1: The Cell Cycle & Mitosis		
SC.912.L.16.14 Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction (assessed as SC.912.L.16.17 on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> describe specific events occurring in each stage of the cell cycle, including the phases of mitosis <ul style="list-style-type: none"> recognize that interphase (G1, S, & G2) is the portion of the cell cycle where cellular contents are duplicated recognize that mitosis is the portion of the cell cycle in which the nucleus divides identify the phases, structures, and major events of each phase of mitosis in both plant and animal cells. describe cytokinesis as the stage of the cell cycle in which the cytoplasm divides, resulting in 2 daughter cells recognize that mitosis results in exact copies of the parent cell which limits genetic variation
**SC.912.L.16.15 Compare and contrast binary fission and mitotic cell division (not assessed on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> recognize that binary fission is a form of asexual reproduction in prokaryotes explain that eukaryotes use mitosis for growth & repair recognize that the rate at which organisms undergo binary fission is much faster than the rate at which organisms undergo mitosis describe the result of both binary fission and mitosis as two identical cells
SC.912.N.1.6 Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied (assessed as SC.912.N.1.1 on Biology 1 EOC assessment).	Moderate	<ul style="list-style-type: none"> recognize that scientists make inferences about types of cells based on time spent in various phases of cell reproduction (i.e., some cells, such as red blood cells, divide rapidly, whereas others take longer)
Topic 2: Meiosis		
SC.912.L.16.16 Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction	Moderate	<ul style="list-style-type: none"> describe specific events occurring in each stage of meiosis recognize that meiosis I is responsible for creating 2 daughter cells that are genetically different

<p>division results in the formation of haploid gametes or spores (assessed as SC.912.L.16.17 on Biology 1 EOC assessment).</p>		<p>from the parent cell (reduction division & crossing over)</p> <ul style="list-style-type: none"> ● recognize that meiosis II is responsible for creating 4 genetically unique haploid gametes (independent assortment) ● recognize that meiosis results in haploid gametes, which then combine during sexual reproduction to produce unique offspring ● identify the phases, structures, and major events of each phase of meiosis
<p>SC.912.L.16.17 Compare and contrast mitosis and meiosis and relate the process of sexual and asexual reproduction and their consequences for genetic variation (parent benchmark on Biology 1 EOC assessment)</p>	<p>High</p>	<ul style="list-style-type: none"> ● compare/contrast mitosis and meiosis <ul style="list-style-type: none"> ○ recognize that interphase occurs only once in both mitosis & meiosis ○ explain that mitosis only has 1 division, while meiosis has 2 divisions ○ describe how eukaryotes use mitosis for growth & repair (asexual) & meiosis for sexual reproduction ● understand that genetic variation is due to crossing over and independent assortment during meiosis
<p>SC.912.N.1.1 Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, & earth/space science, & do the following: pose questions about the natural world, conduct systematic observations, examine books & other sources of information to see what is already known, review what is known in light of empirical evidence, plan investigations, use tools to gather, analyze, & interpret data, pose answers, explanations, or descriptions of events, generate explanations that explicate or describe natural phenomena (inferences), use appropriate evidence & reasoning to justify these explanations to others, communicate results of scientific investigations, & evaluate the merits of the explanations produced by others (parent benchmark on Biology 1 EOC assessment).</p>	<p>High</p>	<ul style="list-style-type: none"> ● identify test variables, outcome variables, and controlled variables ● design and/or evaluate a scientific investigation using evidence of scientific thinking and/or problem solving ● collect, organize, and analyze data ● predict outcomes based on prior knowledge, observations, and/or research ● justify conclusions