Introduction

Biology Module B: CELL CYCLE and REPRODUCTION, is one of four sections of Module B of the Biology Keystone Exam. The content and assignments are organized in a manner consistent with the Pennsylvania Keystone Biology blueprint. In Biology Module B, the theme of continuity and unity of life is explored through four big ideas. Students address the big ideas of cell growth and reproduction, genetics, the theory of evolution, and ecology through the exploration of the following essential questions:

- How do organisms live, grow, respond to their environment, and reproduce?
- How are the characteristics of one generation passed to the next?
- How can individuals of the same species and even siblings have different characteristics?
- How can there be so many similarities among organisms yet so many different kinds of plant, animals, and microorganisms?
- How and why do organisms interact with their environment and what are the effects of these interactions?

The resources in this Module will enable students to reinforce the concepts within the CELL CYCLE and REPRODUCTION as well as resources for teachers to utilize in the classroom. **This section will focus on the question: How do organisms live, grow, respond to their environment, and reproduce?**

Biology B Cell and Cycle Reproduction

Module Title	Message	Assignment / Call to Action	Content Directions	Resource / URL	Info about the URL (published on the "i" button of a resource/url)	Notes
Section Overview: Cell and Cycle Reproduction	In Biology Module B, the theme of continuity and unity of life is explored through four big ideas. In the first section of Cell and Cycle Reproduction you will focus on the cell cycle to compare and analyze the stages and the outcomes of the cell cycle. You will evaluate the processes and outcomes of mitosis and meiosis and analyze and predict how genetic information is inherited. You will use models to describe and communicate their understanding of the content.					
The Cell Cycle and Mitosis	In this session, you will model the events that occur during the cell cycle (interphase, nuclear division, cytokinesis). You can read an interactive text, watch videos, complete activities, read power points, and take a quiz on mitosis and the cell cycle. 3.1.12.A4.					
		READ the text on Cell Division CH 5 SEC 1 and 2.		http://www.brainrush.com/lesson/efms-cell-growth-and-division		
		WATCH a video on abnormal cell growth.		http://www.youtube.com/watch?v=8LhQllh46yI		
		WATCH a video on interphase.		https://www.youtube.com/watch?v=YxB66Y12Wfc		
		WATCH a video on mitosis and cytokinesis.		https://www.youtube.com/watch?v=hT-twVOVt1k		
		WATCH a video on mitosis.		http://www.bozemanscience.com/mitosis		

Module Title	Message	Assignment / Call to Action	Content Directions	Resource / URL	Info about the URL (published on the "i" button of a resource/url)	Notes
		IDENTIFY the phases of the onion root tip cells.		http://www.biology.arizona.edu/cell_bio/activities/cell_cycle/cell_cycle.html		
		LABEL the cell cycle.		http://www.biologycorner.com/worksheets/cellcycle_labelme.html		
		COMPLETE the cell cycle diagram.		http://www.echalk.co.uk/Science/biology/cellDivision/cellCycleDnD/cellCycle.html		
		WATCH the Amoeba Sisters explain mitosis.		https://www.youtube.com/watch?v=gwcwSZIfKIM		
		COMPLETE the Amoeba Sisters video recap worksheet.		https://drive.google.com/open?id=0B99Um_mvTWdGRmFXenAzZWRLMTQ	PDF - Amoeba Sisters: Video Recap	
		EXPLORE the phases of mitosis using the Mitosis app.		https://itunes.apple.com/us/app/mitosis/id348184626?mt=8		

Module Title	Message	Assignment / Call to Action	Content Directions	Resource / URL	Info about the URL (published on the "i" button of a resource/url)	Notes
		REVIEW the phases of mitosis using the Plant Histology app.		https://itunes.apple.com/us/app/plant-histology-lite/id450818648?mt=8		
		MODEL and DESCRIBE the phases of mitosis using the Interactive Whiteboard app.		https://itunes.apple.com/us/app/educreations-interactive-whiteboard/id478617061?mt=8		
		REVIEW cell cycle vocabulary.		http://www.brainrush.com/lesson/efms-cell-growth-and-division		
		ASSESS your knowledge of mitosis.		http://www.biologycorner.com/quiz/qz_mitosis.html		
Meiosis	In this session, you will model the events that occur during meiosis (sexual reproduction). You can read an interactive text, watch videos, complete activities, and take a quiz on meiosis. You will also be able to compare and contrast mitosis (asexual reproduction) and meiosis (sexual reproduction) 3.1.10.A4. 3.1.C.A4.					
		READ the text on Reproduction and Meiosis CH 5 SEC 3.		https://itunes.apple.com/us/book/ck-12-biology-interactive/id574071922?mt=13		

Module Title	Message	Assignment / Call to Action	Content Directions	Resource / URL	Info about the URL (published on the "i" button of a resource/url)	Notes
		WATCH the Ameoba Sisters explain meiosis.		https://www.youtube.com/watch?v=toWK0fIyFIY		
		COMPLETE the Amoeba Sisters video recap worksheet.		https://drive.google.com/open?id=0B99Um_mvTWdGQnh1TmZIUDlZWGM	PDF - Amoeba Sisters: Video Recap	
		EXPLORE meiosis using the Snurfles app.		https://itunes.apple.com/us/app/snurfle-meiosis/id590881394?mt=8		
		COMPLETE the worksheet on Snurfle meiosis.		https://drive.google.com/open?id=0B99Um_mvTWdGTFFIQlhoeFNrY28	Word - snurfle meiosis activity	
		CREATE a karyotype.		http://www.biologycorner.com/worksheets/karyotyping.html		
		QUIZ yourself on meiosis.		http://www.biologycorner.com/quiz/qz_meiosis.html		

Module Title	Message	Assignment / Call to Action	Content Directions	Resource / URL	Info about the URL (published on the "i" button of a resource/url)	Notes
		WATCH a video comparing mitosis to meiosis.		https://www.youtube.com/watch?v=Ba9LXKH2ztU		
		TEST your understanding of mitosis and meiosis.		http://www.quia.com/quiz/3459291.html		
		WATCH a podcast comparing mitosis and meiosis.		Podcast - CRSD Videocast 4.appleuniversal		
		WATCH video that compares mitosis with meiosis.		https://www.youtube.com/watch?v=rqPMp0U0HOA		
		ASSESS your knowledge of cell division after the viewing podcast above.		https://drive.google.com/open?id=0B99Um_mvTWdGc2Utd3hicjFQbWM	PDF - Topic 4 Viewing Guide.docx	
		READ and STUDY the fact sheet on cell reproduction.		https://drive.google.com/open?id=0B99Um_mvTWdGT19iMlBSV2V0TlU	PDF - Topic 4 Quick Facts.docx	

Module Title	Message	Assignment / Call to Action	Content Directions	Resource / URL	Info about the URL (published on the "i" button of a resource/url)	Notes
		MODEL and DESCRIBE the phases of meiosis using the Interactive Whiteboard app.		https://itunes.apple.com/us/app/educreations-interactive-whiteboard/id478617061?mt=8		
DNA, Replication, and Genes	In this session, students will communicate how the process of DNA replication results in the transmission and/or conservation of genetic information. Students will develop models that illustrate the functional relationships between DNA, genes, alleles, and chromosomes and their roles in inheritance.					
		READ the text on DNA CH 7 SEC 1.		https://itunes.apple.com/us/book/ck-12-biology-interactive/id574071922?mt=13		
		WATCH a video on chromosomes, genes, and DNA.		http://www.echalk.co.uk/Science/biology/cellDivision/incredibleJourney/incredibleJourney.html		
		WATCH a video on DNA & RNA - Part 1.		http://www.bozemanscience.com/027-part-1-dna-rna/		
		WATCH a video on DNA & RNA - Part 2.		http://www.bozemanscience.com/027-part-2-dna-rna/		

Module Title	Message	Assignment / Call to Action	Content Directions	Resource / URL	Info about the URL (published on the "i" button of a resource/url)	Notes
		IDENTIFY the structure of DNA using the app.		https://itunes.apple.com/us/app/dna-damage/id448978584?mt=8		
		QUIZ yourself on DNA (Quiz 6).		http://www.biologycorner.com/quiz/DNA6_qz.html		
		VIEW a presentation on DNA and replication.		https://docs.google.com/presentation/d/1P9_HKHUUNVSCLtEmnF_jQKVN5LHaSwZstwbZIQahml k/present?slide=id.i0		
		COMPLETE the double helix worksheet.		http://www.biologycorner.com/worksheets/DNAcoloring.html		
		INTERACT with a 3D DNA model.		http://www.echalk.co.uk/3dmolecules/dna/dna.htm?_USE=HTML5		
		QUIZ yourself on DNA (Quiz 5).		http://www.biologycorner.com/quiz/DNA5_qz.html		

Module Title	Message	Assignment / Call to Action	Content Directions	Resource / URL	Info about the URL (published on the "i" button of a resource/url)	Notes
		WATCH a video on abnormal cell growth.		http://www.youtube.com/watch?v=8LhQllh46yI		
		WATCH the Amoeba Sisters explain the structure and function of DNA.		https://www.youtube.com/watch?v=_POdWsii7AI&list=UUb2GCoLSBXjmI_Qj1vk-44g		
		WATCH the Amoeba Sisters explain DNA replication.		https://www.youtube.com/watch?v=5qSrmeiWsuc&list=UUb2GCoLSBXjmI_Qj1vk-44g		
		COMPLETE the Amoeba Sisters video recap worksheet.		https://drive.google.com/open?id=0B99Um_mvTWdGNTBEdkY4X1Q5dVk	PDF - Amoeba Sisters: Video Recap	
		READ and STUDY the fact sheet on DNA.		https://drive.google.com/open?id=0B99Um_mvTWdGdkUwdDFiclk5SlU	Word - Topic 6 Quick Facts-2	
		WATCH a podcast about DNA and its processes.		Podcast - CRSD Videocast 6.appleuniversal		

Module Title	Message	Assignment / Call to Action	Content Directions	Resource / URL	Info about the URL (published on the "i" button of a resource/url)	Notes
		COMPLETE the viewing guide after watching the podcast above.		https://drive.google.com/open?id=0B99Um_mvTWdGZ0RJX1lEbEJNZlE	Word - Topic 6 Viewing Guide-2	
		ASSESS your knowledge of DNA and its processes.		http://www.crsd.org/Page/32827		