

This module, Biology Module A: Cells and Cell Processes, is one half of a year-long exploration of biology. The content and assignments are organized in a manner consistent with the Pennsylvania Keystone Biology blueprint. In Biology Module A: the theme of Cells and Cell Processes is explored through four big ideas. Students address the big ideas: The Basic Biological Principles, The Chemical Basis of Life, Bioenergetics, Homeostasis and Transport through the exploration of the Essential Questions:

- How do organisms live, grow, respond to their environment, and reproduce?
- How do the structures of organisms enable life's functions?
- How do organisms grow and develop?
- How and why do organisms interact with their environment and what are the effects of these interactions?

How do organisms obtain and use the matter and energy they need to live and grow?

The resources in this module will enable students to reinforce the concepts within Basic Biological Principles as well as resources for teachers to utilize in the classroom.

BIO A BASIC BIOLOGICAL PRINCIPLES

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: Basic Biological Principles	Students investigate explanations for the structure and function of cells as the basic units of life, the hierarchical systems of organisms, and the role of specialized cells for maintenance and growth. Students will gain an understanding of how systems of cells function together to support the life processes. Students will increase their understanding through using models, conducting investigations, and critical reading. The crosscutting concepts of structure and function, matter and energy, and systems and system models in organisms are the organizing concepts.					
Section 1: Common Characteristics	Students develop and use models to determine the characteristics of life shared by all prokaryotic and eukaryotic organisms. In the first assignment, students will view short videos on each characteristic and complete a summary sheet. In the second assignment, students answer self-check questions on characteristics common to all living things. The third assignment is a short reading that covers the characteristics of life and follow-up review questions to answer. SAS Standards 3.1.B.A1, 3.1.B.C2, 4.1.3.A, 4.1.4.A					
		READ the text on Characteristics of Life Ch 1 Sec 2.		https:// itunes.apple.com/ us/book/ck-12- biology-interactive/ id574071922? mt=13		
		WATCH the video to identify the characteristics of life.		https:// www.youtube.com/ watch?v=juxLuo- sH6M		

		REVIEW, then OBSERVE and IDENTIFY the characteristics of life in this activity.		https://drive.google.com/open?id=0B99Um_mvTWdGUG9PNWZ2Qzd_aRGc	Word - Characteristics_Student	
		ASSESS your knowledge of the characteristics of life.		http://www.ck12.org/biology/Characteristics-of-Life/quiz/Characteristics-of-Life-Quiz/r1/		
Section 2: Differences Between Prokaryotes and Eukaryotes	Students compare similarities and differences between Prokaryotic and Eukaryotic Cells. SAS Standards 3.1.B.A1, 3.1.B.A5, 3.1.B.C2, 4.1.4.A					
		READ the text on Cell Types Ch 3 Sec 1.		https://itunes.apple.com/us/book/ck-12-biology-interactive/id574071922?mt=13		
		WATCH the Amoeba Sisters explain eukaryotic and prokaryotic cells.		https://www.youtube.com/watch?v=ruBAHij4EA		
		COMPLETE the Amoeba Sisters video recap worksheet.		https://drive.google.com/open?id=0B99Um_mvTWdGV29IajE1ZG1QNzg	PDF - Amoeba sister: Video Recap	

		READ the text Prokaryotes Ch 13 Sec 1.		https:// itunes.apple.com/ us/book/ck-12- biology-interactive/ id574071922? mt=13		
		TEST your understanding of prokaryotes using the quiz in Ch 13 Sec 1.		https:// itunes.apple.com/ us/book/ck-12- biology-workbook/ id518270997? mt=11		
		COMPARE prokaryotic and eukaryotes cell characteristics.		http:// www.life.umd.edu/ classroom/bsci424/ BSCI223WebSiteFil es/ ProkaryoticvsEukar yotic.htm		
		DIFFERENTIATE between prokaryotic and eukaryotic cells in the following activity.		https:// drive.google.com/ open? id=0B99Um_mvTW dGSmk1WklBbXlm Slk	PDF Document1	
Section 3: Biological Levels of Organization	Students compare cellular structures and their functions in prokaryotic and eukaryotic cells as well as examine the relationships between structure and function at various levels of biological organization. Students read about the parts of the cell; watch short video showing the organelles in action; listen to the 'cell song' and finally play a game.					
		READ the text on Cell Structure Ch 3 Sec 2.		https:// itunes.apple.com/ us/book/ck-12- biology-interactive/ id574071922? mt=13		

		LEARN about cell organelles in this musical video.		https:// www.youtube.com/ watch? v=dngsFl2X3nc		
		DIFFERENTIATE between organelles using the iCell app.		https:// itunes.apple.com/ us/app/ hudsonalpha-icell/ id364882015?mt=8		
		RESEARCH cell organelles and COMPLETE the graphic organizer in part A.		http:// www.biologycorner. com/worksheets/ cell_research_desig n.html#.U8Vu0qjZAcA		
		CREATE a digital model of the cell using an image editor in part B.		http:// www.biologycorner. com/worksheets/ cell_research_desig n.html#.UzMDTIOgc9Y		
		PLAY the sweet 16 cell game.		https:// drive.google.com/ open? id=0B99Um_mvTW dGc3INX0h0dUM4 MDA	PDF - Sweet16CellBiology	
		EXPLORE eukaryopolis - The City of Animal Cells in this video.		https:// www.youtube.com/ watch? v=cj8dDTHGJBY		
		COMPARE cells to widgets and CREATE your own analogous model for organelles.		https:// drive.google.com/ open? id=0B99Um_mvTW dGb1ZZVDZBY25l SVU	PDF - Cell Analogy Project.docx	

		COMPOSE a persuasive letter to the nucleus boss to avoid banishment from the cell.		https://drive.google.com/open?id=0B99Um_mvTWdGX05JTXliLWRKMzg	PDF - 7-2_Organelle_Writing_Assignment.doc	
		IDENTIFY the correct cell structures in this activity.		https://drive.google.com/open?id=0B99Um_mvTWdGUIBtWEM4RkJ6SHc	PDF - Eukaryotic Cell Practice.docx	
		REVIEW cell organelles identified in the previous activity by using the Think Dots game.		https://drive.google.com/open?id=0B99Um_mvTWdGbXluNVIOT2s3bWs	PDF - Think Dots.docx	
		QUIZ yourself on cell types and organelles.		http://biologycorner.com/quiz/qz_cell.html		
		WATCH the 8 levels of Organization tutorial and ASSESS your understanding of the concepts.		https://www.sophia.org/tutorials/8-levels-of-organization--3?from_many_ways=true		
		REVIEW the main levels of cellular organization.		http://www.scsc.k12.in.us/SMS/Teachers/Martin/replacellevelsoforganization.htm		

Review - Biological Principles	Students review and check for learning from the previous modules.
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		WATCH the Parts of a Cell video.		https:// www.youtube.com/ watch? v=Hmwvj9X4GNY		
		COMPLETE the Parts of a Cell video review worksheet.	https:// drive.google.com/ open? id=0B99Um_mvTW dGVEJ5RE5taWJv Umc	Word - Topic 2 Viewing Guide(1)		
		STUDY the cells and the organization of life review guide.	https:// drive.google.com/ open? id=0B99Um_mvTW dGXzlya3ltaGd1b2 8	Word - Topic 2 Quick Facts		
		TEST your knowledge of cells.		http://www.crsd.org/ Page/32655		