

**RCPS Curriculum Pacing Guide
2024-2025
Subject: Biology**

Week of:	SOL #	Unit	Bloom's	Objectives
Week 1 and throughout the semester	#BIO1 <u>Scientific reasoning, logic and the nature of Science</u> (all) *This standard will be introduced week 1, but revisited throughout the semester*	<ul style="list-style-type: none"> Chapter 1 Biology: The Study of Life 	Remembering, Understanding, Applying, Analyzing, Evaluating, Creating	1.a) asking questions and defining problems 1.b) planning and carrying out investigations 1.c) interpreting, analyzing, and evaluating data 1.d) constructing and critiquing conclusions and explanations 1.e) developing and using models 1.f) obtaining, evaluating, and communicating information
Week 2	#BIO8 <u>Dynamic equilibria within populations, communities, and Ecosystems</u> (8.a-d)	<ul style="list-style-type: none"> Chapter 2 Principles of Ecology Chapter 3 Communities and Biomes Chapter 4 Population Biology Chapter 5 Biological Diversity/Conservation 	Remembering, Understanding, Applying, Analyzing, Evaluating, Creating	8.a) interactions within and among populations include carrying capacities, limiting factors, and growth curves; 8.b) nutrients cycle with energy flow through ecosystems; 8.c) ecosystems have succession patterns; 8.d) natural events and human activities influence local and global ecosystems and may affect the flora and fauna of Virginia.
Week 3	#BIO2 <u>Chemical and biochemical processes essential for life</u> (2.a – 2.c)	<ul style="list-style-type: none"> Chapter 6 Chemistry in Biology 	Remembering, Understanding, Applying Analyzing, Evaluating, Creating	2.a) water chemistry has an influence on life processes; 2.b) macromolecules have roles in maintaining life processes;

				2.c) enzymes have a role in biochemical processes;
Week 4	#BIO2 <u>Chemical and biochemical processes essential for life</u> (2.e) #BIO 3 <u>Cellular structure and function</u> (3.a, 3.b, and 3.d)	<ul style="list-style-type: none"> • Chapter 7 Cellular structure and function • Chapter 8 Cellular energy 		3.a) the cell theory is supported by evidence; 3.b) structures in unicellular and multicellular organisms work interdependently to carry out life processes; 3.d) the structure and function of the cell membrane support cell transport 2.e) the processes of photosynthesis and respiration include the capture, storage, transformation, and flow of energy
Week 5 EXAM 1	#BIO 3 <u>Cellular structure and function</u> (3.c and 3.e) #BIO.5 <u>Common Mechanisms of Inheritance and Protein Synthesis</u> (5.c and 5.d)	<ul style="list-style-type: none"> • Chapter 9 Cell Cycle and division • Chapter 10 Meiosis and basic inheritance 	Remembering, Understanding, Applying, Analyzing, Evaluating	3.c) cell structures and processes are involved in cell growth and division; 3.e) specialization leads to the development of different types of cells. 5.c) the variety of traits in an organism are the result of the expression of various combinations of alleles; 5.d) meiosis has a role in genetic variation between generations
Weeks 6 and 7	#BIO.5 <u>Common Mechanisms of Inheritance and Protein Synthesis</u> (2.d, 5.a, 5.b, and 5.e)	<ul style="list-style-type: none"> • Chapter 11 DNA The Molecule of Heredity • Chapter 12 Mendelian Inheritance of Human Traits 	Remembering, Understanding, Applying Analyzing, Evaluating	2.d) protein synthesis is the process of forming proteins which influences inheritance and evolution 5.a) DNA has structure and is the foundation for protein synthesis; 5.b) the structural model of DNA has developed over time; 5.e) synthetic biology has biological and ethical implications.

		<ul style="list-style-type: none"> • Chapter 13 Biotechnology 		
Week 7 Week 7	#BIO.1,2,3,5 and 8 #BIO.7 <u>How populations change through time</u> (7.a, 7.b, 7.c, and 7.d)	First Benchmark Test <ul style="list-style-type: none"> • Chapter 14 The History of Life • Chapter 15 The Theory of Evolution • Chapter 16 Primate Evolution 	All of Blooms Remembering, Understanding, Applying, Analyzing, Evaluating	All of SOLs BIO.1, BIO.2, BIO.3, BIO.5, BIO.8 7.a) evidence is found in fossil records and through DNA analysis; 7.b) genetic variation, reproductive strategies, and environmental pressures affect the survival of populations; 7.c) natural selection is a mechanism that leads to adaptations and may lead to the emergence of new species; and 7.d) biological evolution has scientific evidence and explanations.
Week 8	#BIO.6 <u>Modern Classification Systems</u> (6.a, 6.b, and 6.c)	<ul style="list-style-type: none"> • Chapter 17 Organizing Life's Diversity 	Remembering, Understanding, Applying, Analyzing, Evaluating, Creating	6.a) organisms have structural and biochemical similarities and differences; 6.b) fossil record interpretation can be used to classify organisms; 6.c) developmental stages in different organisms can be used to classify organisms;
Week 8 and 9	#BIO.4 <u>Effects of Bacteria and Viruses on Living Systems</u> (4.a, 4.b, 4.c, 4.d, and 4.e) (6.d and 6.e)	<ul style="list-style-type: none"> • Chapter 18 Viruses and Bacteria • Chapter 19 Protists 	Remembering, Understanding, Applying, Analyzing Evaluating	4.a) viruses depend on a host for metabolic processes; 4.b) the modes of reproduction/replication can be compared; 4.c) the structures and functions can be compared; 4.d) bacteria and viruses have a role in other organisms and the environment; and 4.e) the germ theory of infectious disease is supported by evidence.

				<p>6.d) Archaea, Bacteria, and Eukarya are domains based on characteristics of organisms;</p> <p>6.e) the functions and processes of protists, fungi, plants, and animals allow for comparisons and differentiation within the Eukarya kingdoms; and</p>
Week 10	All SOLs so far	Mid-Course exam (2)		
Week 10	#BIO.6 Continued <u>Modern Classification Systems</u> (6.d and 6.e)	<ul style="list-style-type: none"> • Chapter 20 Fungi • Chapter 21 Introduction to Plants • Chapter 22 Plant Structure and Function 	Remembering, Understanding, Applying, Analyzing Evaluating	<p>6.d) Archaea, Bacteria, and Eukarya are domains based on characteristics of organisms;</p> <p>6.e) the functions and processes of protists, fungi, plants, and animals allow for comparisons and differentiation within the Eukarya kingdoms; and</p> <p>Spiraling of previously addressed related standards</p>
Week 11	#BIO.6 Continued <u>Modern Classification Systems</u> (6.c, 6.e and 6.f)	<ul style="list-style-type: none"> • Chapter 23 Plant Reproduction • Chapter 24 Introduction to Animals 	Remembering Understanding, Applying, Analyzing, Evaluating	<p>6.c) developmental stages in different organisms can be used to classify organisms;</p> <p>6.e) the functions and processes of protists, fungi, plants, and animals allow for comparisons and differentiation within the Eukarya kingdoms; and</p> <p>6.f) systems of classification are adaptable to new scientific discoveries.</p>

Week 12	#BIO.6 Continued <u>Modern Classification Systems</u> (6.c, 6.e and 6.f)	<ul style="list-style-type: none"> • Chapter 25 Flatworms, Roundworms and Mollusks • Chapter 26 Arthropods and Annelids 	Remembering, Understanding, Applying, Analyzing, Evaluating	<p>6.c) developmental stages in different organisms can be used to classify organisms;</p> <p>6.e) the functions and processes of protists, fungi, plants, and animals allow for comparisons and differentiation within the Eukarya kingdoms; and</p> <p>6.f) systems of classification are adaptable to new scientific discoveries.</p>
Week 13	#BIO.6 Continued <u>Modern Classification Systems</u> (6.c, 6.e and 6.f)	<ul style="list-style-type: none"> • Chapter 27 Echinoderms and Invertebrate Chordates • Chapter 28 Fish and Amphibians 	Remembering, Understanding, Applying, Analyzing, Evaluating	<p>6.c) developmental stages in different organisms can be used to classify organisms;</p> <p>6.e) the functions and processes of protists, fungi, plants, and animals allow for comparisons and differentiation within the Eukarya kingdoms; and</p> <p>6.f) systems of classification are adaptable to new scientific discoveries.</p>
Week 14	#BIO.6 Continued <u>Modern Classification Systems</u> (6.c, 6.e and 6.f)	<ul style="list-style-type: none"> • Chapter 29 Reptiles and Birds • Chapter 30 Mammals 	Remembering, Understanding, Applying, Analyzing, Evaluating	<p>6.c) developmental stages in different organisms can be used to classify organisms;</p> <p>6.e) the functions and processes of protists, fungi, plants, and animals allow for comparisons and differentiation within the Eukarya kingdoms; and</p>

				6.f) systems of classification are adaptable to new scientific discoveries.
Week 15	#BIO.1-BIO.8	Second Benchmark Test	All of Bloom's	All of SOLs BIO.1, BIO.2, BIO.3, BIO.4, BIO.5, BIO.6, BIO.7, BIO.8
Week 15 EXAM 3			Remembering, Understanding, Applying, Analyzing, Evaluating	
Week 16	#BIO.1-BIO.8	SOL Review and Test	All of Bloom's	All of SOLs BIO.1, BIO.2, BIO.3, BIO.4, BIO.5, BIO.6, BIO.7, BIO.8
Week 17	Human Body Systems		Remembering, Understanding, Applying, Analyzing, Evaluating	
Week 18	#BIO.1-BIO.8 plus Human Body Content	Final Exam Review and Exam	All of Bloom's	All of SOLs BIO.1, BIO.2, BIO.3, BIO.4, BIO.5, BIO.6, BIO.7, BIO.8