

Cell Structure and Biochemistry

Process: Tools to Know		Notes	Check Up		
Investigations	☐ I can plan and conduct investigations and design solutions. B.1(A), B.1(B), B.1(C), B.2(D)				
Tools and Equipment	☐ I can use appropriate tools and equipment. B.1(D)				
Information	☐ I can collect and record information. B.1(E), B.1(F)				

Content		Notes	Check Up		
Cellular Complexity	☐ I can compare and contrast prokaryotic and eukaryotic cells, including their complexity. B.5(B)				
	☐ I can compare and contrast scientific explanations for cellular complexity. B.5(B)				
	☐ I can relate the functions of different types of biomolecules to the structure and function of a cell. B.5(A) ☐ carbohydrates ☐ lipids ☐ proteins ☐ nucleic acids				
	☐ I can investigate homeostasis through the cellular transport of molecules. B.5(C)				
Viruses	☐ I can compare the structures of viruses to cells. B.5(D)				
	☐ I can explain how viruses spread and cause disease. B.5(D)				

Process: Ways to Show		Notes	Check Up		
Models/Information	☐ I can develop and use models/information. B.1(G), B.1(H), B.2(A), B.4(A)				
Data	☐ I can analyze and interpret data. B.2(B), B.2(C)				
Explanations/Solutions	☐ I can develop and communicate explanations/solutions. B.3(A), B.3(B), B.3(C)				
Science and the Real World	☐ I can connect science with the real world. B.4(B), B.4(C)				

Organism Growth and Cell Differentiation

Process: Tools to Know		Notes	Check Up		
Investigations	☐ I can plan and conduct investigations and design solutions. B.1(A), B.1(B), B.1(C), B.2(D)				
Tools and Equipment	☐ I can use appropriate tools and equipment. B.1(D)				
Information	☐ I can collect and record information. B.1(E), B.1(F)				

Content		Notes	Check Up		
Cell Cycle	☐ I can relate disruptions of the cell cycle to how they lead to the development of diseases. B.6(C)				
	☐ I can explain the importance of the cell cycle to the growth of organisms, including an overview of the stages of the cell cycle and deoxyribonucleic acid (DNA) replication models. B.6(A)				
Cell Differentiation	☐ I can explain the process of cell specialization through cell differentiation, including the role of environmental factors. B.6(B)				

Process: Ways to Show		Notes	Check Up		
Models/Information	☐ I can develop and use models/information. B.1(G), B.1(H), B.2(A), B.4(A)				
Data	☐ I can analyze and interpret data. B.2(B), B.2(C)				
Explanations/Solutions	☐ I can develop and communicate explanations/solutions. B.3(A), B.3(B), B.3(C)				
Science and the Real World	☐ I can connect science with the real world. B.4(B), B.4(C)				

Mechanisms of Genetics

Process: Tools to Know		Notes	Check Up		
Investigations	☐ I can plan and conduct investigations and design solutions. B.1(A), B.1(B), B.1(C), B.2(D)				
Tools and Equipment	☐ I can use appropriate tools and equipment. B.1(D)				
Information	☐ I can collect and record information. B.1(E), B.1(F)				

Content		Notes	Check Up		
DNA	☐ I can identify components of DNA. B.7(A)				
	☐ I can explain how the nucleotide sequence specifies some traits of an organism. B.7(A)				
	☐ I can examine scientific explanations for the origin of DNA. B.7(A)				
Gene Expression	☐ I can describe the significance of gene expression. B.7(B)				
	☐ I can explain the process of protein synthesis using models of DNA and ribonucleic acid (RNA). B.7(B)				
Mutations	☐ I can identify and illustrate changes in DNA and evaluate the significance of these changes. B.7(C)				
Molecular Technologies	☐ I can discuss the importance of molecular technologies such as polymerase chain reaction (PCR), gel electrophoresis, and genetic engineering that are applicable in current research and engineering practices. B.7(D)				

Process: Ways to Show		Notes	Check Up		
Models/Information	☐ I can develop and use models/information. B.1(G), B.1(H), B.2(A), B.4(A)				
Data	☐ I can analyze and interpret data. B.2(B), B.2(C)				
Explanations/Solutions	☐ I can develop and communicate explanations/solutions. B.3(A), B.3(B), B.3(C)				
Science and the Real World	☐ I can connect science with the real world. B.4(B), B.4(C)				

Heredity and Diversity

Process: Tools to Know		Notes	Check Up		
Investigations	☐ I can plan and conduct investigations and design solutions. B.1(A), B.1(B), B.1(C), B.2(D)				
Tools and Equipment	☐ I can use appropriate tools and equipment. B.1(D)				
Information	☐ I can collect and record information. B.1(E), B.1(F)				

Content		Notes	Check Up		
Genetic Diversity	☐ I can predict possible outcomes of various genetic combinations using monohybrid crosses, including non-Mendelian traits of: B.8(B) ☐ incomplete dominance ☐ codominance ☐ sex-linked traits ☐ multiple alleles				
	☐ I can predict possible outcomes of various genetic combinations using dihybrid crosses. B.8(B)				
	☐ I can analyze the significance of: ☐ chromosome reduction ☐ independent assortment ☐ crossing-over during meiosis in increasing diversity in populations of organisms that reproduce sexually. B.8(A)				

Process: Ways to Show		Notes	Check Up		
Models/Information	☐ I can develop and use models/information. B.1(G), B.1(H), B.2(A), B.4(A)				
Data	☐ I can analyze and interpret data. B.2(B), B.2(C)				
Explanations/Solutions	☐ I can develop and communicate explanations/solutions. B.3(A), B.3(B), B.3(C)				
Science and the Real World	☐ I can connect science with the real world. B.4(B), B.4(C)				

Evolutionary Theory

Process: Tools to Know		Notes	Check Up		
Investigations	☐ I can plan and conduct investigations and design solutions. B.1(A), B.1(B), B.1(C), B.2(D)				
Tools and Equipment	☐ I can use appropriate tools and equipment. B.1(D)				
Information	☐ I can collect and record information. B.1(E), B.1(F)				

Content		Notes	Check Up		
Evolution	☐ I can examine scientific explanations for varying rates of change such as gradualism, abrupt appearance, and stasis in the fossil record. B.9(B)				
	☐ I can analyze and evaluate how evidence of common ancestry among groups is provided by: B.9(A) ☐ the fossil record ☐ biogeography ☐ homologies, including anatomical ☐ homologies, including molecular ☐ homologies, including developmental				

Process: Ways to Show		Notes	Check Up		
Models/ Information	☐ I can develop and use models/information. B.1(G), B.1(H), B.2(A), B.4(A)				
Data	☐ I can analyze and interpret data. B.2(B), B.2(C)				
Explanations/ Solutions	☐ I can develop and communicate explanations/solutions. B.3(A), B.3(B), B.3(C)				
Science and the Real World	☐ I can connect science with the real world. B.4(B), B.4(C)				

Evolutionary Mechanisms

Process: Tools to Know		Notes	Check Up		
Investigations	☐ I can plan and conduct investigations and design solutions. B.1(A), B.1(B), B.1(C), B.2(D)				
Tools and Equipment	☐ I can use appropriate tools and equipment. B.1(D)				
Information	☐ I can collect and record information. B.1(E), B.1(F)				

Content		Notes	Check Up		
Natural Selection	☐ I can analyze and evaluate how the elements of natural selection, including: ☐ inherited variation ☐ the potential of a population to produce more offspring than can survive ☐ a finite supply of environmental resources ☐ result in differential reproductive success. B.10(B)				
	☐ I can analyze and evaluate how natural selection may lead to speciation. B.10(C)				
	☐ I can analyze and evaluate how natural selection produces change in populations and not in individuals. B.10(A)				
Nonadaptive Mechanisms	☐ I can analyze evolutionary mechanisms other than natural selection, including: ☐ genetic drift ☐ gene flow ☐ mutation ☐ genetic recombination and their effect on the gene pool of a population. B.10(D)				

Process: Ways to Show		Notes	Check Up		
Models/Information	☐ I can develop and use models/information. B.1(G), B.1(H), B.2(A), B.4(A)				
Data	☐ I can analyze and interpret data. B.2(B), B.2(C)				
Explanations/Solutions	☐ I can develop and communicate explanations/solutions. B.3(A), B.3(B), B.3(C)				
Science and the Real World	☐ I can connect science with the real world. B.4(B), B.4(C)				

Energy Conversions in Organisms

Process: Tools to Know		Notes	Check Up		
Investigations	☐ I can plan and conduct investigations and design solutions. B.1(A), B.1(B), B.1(C), B.2(D)				
Tools and Equipment	☐ I can use appropriate tools and equipment. B.1(D)				
Information	☐ I can collect and record information. B.1(E), B.1(F)				

Content		Notes	Check Up		
Cellular Respiration	☐ I can investigate and explain the role of enzymes in facilitating cellular processes. B.11(B)				
	☐ I can explain how matter is conserved and energy is transferred during cellular respiration using models, including the chemical equations for these processes. B.11(A)				
Photosynthesis	☐ I can explain how matter is conserved and energy is transferred during photosynthesis using models, including the chemical equations for these processes. B.11(A)				

Process: Ways to Show		Notes	Check Up		
Models/ Information	☐ I can develop and use models/information. B.1(G), B.1(H), B.2(A), B.4(A)				
Data	☐ I can analyze and interpret data. B.2(B), B.2(C)				
Explanations/ Solutions	☐ I can develop and communicate explanations/solutions. B.3(A), B.3(B), B.3(C)				
Science and the Real World	☐ I can connect science with the real world. B.4(B), B.4(C)				

Interactions Among Biological Systems

Process: Tools to Know		Notes	Check Up		
Investigations	☐ I can plan and conduct investigations and design solutions. B.1(A), B.1(B), B.1(C), B.2(D)				
Tools and Equipment	☐ I can use appropriate tools and equipment. B.1(D)				
Information	☐ I can collect and record information. B.1(E), B.1(F)				

Content		Notes	Check Up		
Animal Structure and Function	☐ I can analyze the interactions that occur among systems that perform the functions of: B.12(A) ☐ regulation ☐ nutrient absorption ☐ reproduction ☐ defense from injury or illness				
Plant Structure and Function	☐ I can explain how the interactions that occur among systems that perform functions of: ☐ transport ☐ reproduction ☐ response in plants are facilitated by their structures. B.12(B)				

Process: Ways to Show		Notes	Check Up		
Models/Information	☐ I can develop and use models/information. B.1(G), B.1(H), B.2(A), B.4(A)				
Data	☐ I can analyze and interpret data. B.2(B), B.2(C)				
Explanations/Solutions	☐ I can develop and communicate explanations/solutions. B.3(A), B.3(B), B.3(C)				
Science and the Real World	☐ I can connect science with the real world. B.4(B), B.4(C)				

Interdependence and Ecosystem Stability

Process: Tools to Know		Notes	Check Up		
Investigations	☐ I can plan and conduct investigations and design solutions. B.1(A), B.1(B), B.1(C), B.2(D)				
Tools and Equipment	☐ I can use appropriate tools and equipment. B.1(D)				
Information	☐ I can collect and record information. B.1(E), B.1(F)				

Content		Notes	Check Up		
Ecosystem Stability	☐ I can explain how environmental change, including change due to human activity, affects biodiversity. B.13(D)				
	☐ I can explain how changes in biodiversity impact ecosystem stability. B.13(D)				
	☐ I can investigate and evaluate how ecological relationships influence ecosystem stability, including: B.13(A) ☐ predation ☐ parasitism ☐ commensalism ☐ mutualism ☐ competition				
	☐ I can analyze how ecosystem stability is affected by disruptions to the cycling of matter and flow of energy through trophic levels using models. B.13(B)				
	☐ I can explain the significance of the carbon and nitrogen cycles to ecosystem stability. B.13(C)				
	☐ I can analyze the consequences of disrupting the carbon and nitrogen cycles. B.13(C)				

Process: Ways to Show		Notes	Check Up		
Models/Information	☐ I can develop and use models/information. B.1(G), B.1(H), B.2(A), B.4(A)				
Data	☐ I can analyze and interpret data. B.2(B), B.2(C)				
Explanations/Solutions	☐ I can develop and communicate explanations/solutions. B.3(A), B.3(B), B.3(C)				
Science and the Real World	☐ I can connect science with the real world. B.4(B), B.4(C)				