



U1 - Characteristics of Life and Cells

Draft Date 06-07-2024	Course Grade 7 Science	Duration 46 Day(s)	Grades 7	Subjects Science	Team Kerry Risser, Allison Zmuda, Ramon Rivera, Alexis Harmon, Wesley Maloney
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Focus

Did you ever wonder how trees, dogs, and even tiny bacteria are all alive? Get ready for an electrifying journey in class where we will unravel the mystery of what makes something truly alive! We will dive into the fascinating world of cells, using thrilling tools like microscopes to explore the building blocks of life up close and personal.

Stage 1: Learning Goals

Established Goals	Transfer	
Standards	Long-Term Transfer Goals	
Pennsylvania Academic Standards Science (2023): 6-8 Standards ■ Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells. Clarifying Statement: Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or many and varied cells. Assessment Boundary: N/A (3.1.6-8.A)	What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to... ■ Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) (T1) ■ Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) (T2) ■ Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) (T3)	
	Meaning	
	Understandings	Essential Questions
	What specifically do you want students to understand? What inferences should they make? Students will understand that... ■ All organisms are made of cells and can be characterized by common aspects of their structure and functioning. (U1)	What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering... ■ How do the structures of organisms enable life's functions? (Q1)

- Develop and use a model to describe the function of a cell as a whole and the ways that parts of cells contribute to the function.

Clarifying Statement: Emphasis is on the cell functioning as a whole system and the primary role of identified parts of the cell, specifically the nucleus, chloroplasts, mitochondria, cell membrane, and cell wall.

Assessment Boundary: Assessment of organelle structure/function relationships is limited to the cell wall and cell membrane. Assessment of the function of the other organelles is limited to their relationship to the whole cell. Assessment does not include the biochemical function of cells or cell parts. (3.1.6-8.B)

- Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

Clarifying Statement: Emphasis is on the conceptual understanding that cells form tissues and tissues form organs specialized for particular body functions. Examples could include the interaction of subsystems within a system and the normal functioning of those systems.

Assessment Boundary: Assessment does not include the mechanism of one body system independent of others. Assessment is limited to the circulatory, excretory,

- Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment. (U2)

- How do organisms obtain and use the matter and energy they need to live and grow? (Q2)
- How do organisms detect, process, and use information about the environment? (Q3)
- What is the significance of cellular respiration in providing energy for living organisms? (Q4)

Acquisition of Knowledge & Skill

Knowledge	Skills
What facts and basic concepts should students know and be able to recall? Students will know... ■ All living things are made up of cells, which is the smallest unit of life. (A) (K1) ■ An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (A) (K2) ■ Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (B) (K3) ■ Groups of similar cells form tissues, such as muscle or nervous tissues. (C) (K4) ■ Multiple tissues combine to create organs, like the heart or liver, each with distinct roles crucial to the body's functioning. (C) (K5)	What discrete skills and processes should students be able to use? Students can... ■ I can establish how the cell structures of organisms enable life's functions. (S1) ■ I can apply how organisms obtain and use the matter and energy they need to live and grow. (S2) ■ I can discover how organisms detect, process, and use information about the environment. (S3) ■ I can explain the importance of cell membranes in maintaining homeostasis. (S4) ■ I can describe the process of cellular respiration and its role in energy production. (S5)

digestive, respiratory, muscular, and nervous systems. (3.1.6-8.C)

- Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

Clarifying Statement: Emphasis is on tracing movement of matter and flow of energy.

Assessment Boundary: Assessment does not include the biochemical mechanisms of photosynthesis. (3.1.6-8.F)

- Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.

Clarifying Statement: Emphasis is on describing that molecules are broken apart and put back together and that in this process, energy is released.

Assessment Boundary: Assessment does not include details of the chemical reactions for photosynthesis or respiration. (3.1.6-8.G)

- Gather and synthesize information about how sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

Clarifying Statement: N/A

- Organs are organized into **organ systems**, such as the circulatory or digestive systems, which coordinate complex processes and activities across the body. (C) (K6)
- Integrated organ systems form an **organism**, which is a complete living entity capable of growth, reproduction, and response to the environment. (C) (K7)
- Photosynthesis occurs in the **chloroplasts** of **plant cells**, where the pigment chlorophyll captures sunlight. (F) (K8)
- **Cellular respiration**, a process where organisms break down glucose to release stored energy, returning carbon dioxide and water to the environment, which are then reused in photosynthesis. (F) (K9)
- **Photosynthesis** is the process by which plants make their own food by converting light energy into **chemical energy**, producing glucose and oxygen from carbon dioxide and water. (F & G) (K10)
- Within individual organisms, food moves through a series of chemical reactions where it is broken down and rearranged to form new molecules. (G) (K11)
- **Cellular respiration** in plants and animals involve chemical reactions with oxygen that release energy. (G) (K12)

Assessment Boundary: Assessment does not include mechanisms for the transmission of this information. (3.1.6-8.H)

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. (PCVL.CM)
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. (PCVL.LLL)

- Each sensor receptor responds to different inputs (**electromagnetic, mechanical, chemical**), transmitting them as signals that travel along nerve cells to the brain resulting in immediate behaviors or memories. (H) (K13)
- Brain signals are processed and result in immediate behaviors or memories. (H) (K14)



U2 - Genetics and Variation

Draft Date 06-07-2024	Course Grade 7 Science	Duration 23 Day(s)	Grades 7	Subjects Science	Team Kerry Risser, Allison Zmuda, Ramon Rivera, Alexis Harmon, Wesley Maloney
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Focus

How can unlocking the secrets of our genetic code pave the way for curing diseases, enhancing human abilities, and discovering our ancestral past? Genetics is the key to discovering the mysteries of life itself, revealing the intricate blueprint that shapes every living organism and offering groundbreaking insights that have the potential to revolutionize medicine, agriculture, and our understanding of human inheritance and diversity.

Stage 1: Learning Goals

Established Goals	Transfer			
Standards	Long-Term Transfer Goals			
Pennsylvania Academic Standards Science (2023): 6-8 Standards Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. Clarifying Statement: Examples of local environmental conditions could include availability of food, light, space, and water. Examples of genetic factors could include large breed cattle and species of grass affecting growth of organisms. Examples of evidence could include drought decreasing plant growth, fertilizer increasing plant	What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to... - Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) (T1) - Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) (T2)			
	Meaning			
	<table> <tr> <th>Understandings</th><th>Essential Questions</th></tr> <tr> <td> What specifically do you want students to understand? What inferences should they make? Students will understand that... - Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring </td><td> What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering... - How do organisms grow and develop? (Q1) </td></tr> </table>	Understandings	Essential Questions	What specifically do you want students to understand? What inferences should they make? Students will understand that... Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring
Understandings	Essential Questions			
What specifically do you want students to understand? What inferences should they make? Students will understand that... Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring	What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering... How do organisms grow and develop? (Q1)			

growth, different varieties of plant seeds growing at different rates in different conditions, and fish growing larger in large ponds than they do in small ponds.

Assessment Boundary: Assessment does not include genetic mechanisms, gene regulation, or biochemical processes. (3.1.6-8.E)

- Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

Clarifying Statement: Emphasis is on conceptual understanding that changes in genetic material may result in making different proteins.

Assessment Boundary: Assessment does not include specific changes at the molecular level, mechanisms for protein synthesis, or specific types of mutations. (3.1.6-8.M)

- Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

Clarifying Statement: Emphasis is on using models such as Punnett squares, diagrams, and simulations to describe the cause and effect relationship of gene transmission

resemble, but are not identical to, their parents. (U1)

- Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment. (U2)

- How are the characteristics of one generation related to the previous generation? (Q2)
- Why do individuals of the same species vary in how they look, function, and behave? (Q3)
- How does genetic variation among organisms affect survival and reproduction? (Q4)

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall?
Students will know...

- Genetic factors as well as local conditions affect the growth of the organism. (E) (K1)
- **Genes** are located in the **chromosomes** of cells, with each chromosome pair containing two variants of each of many distinct genes. (M) (K2)
- Each distinct gene controls the production of specific proteins, which affects the trait of the individual. (M) (K3)
- Changes (**mutations**) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits. (M) (K4)
- Organisms reproduce, either **sexually** or **asexually**, and transfer their genetic information to their **offspring**. (N) (K5)

Skills

What discrete skills and processes should students be able to use? Students can...

- I can establish how organisms grow and develop. (S1)
- I can describe the characteristics of one generation related to a previous generation (S2)
- I can assess how the individuals of the same species vary in how they look, function, and behave. (S3)
- I can determine how individuals of the same species vary in how they look, function, and behave. (S4)
- I can describe how genetic variation among organisms affects survival and reproduction. (S5)

from parent(s) to offspring and resulting genetic variation.

Assessment Boundary: N/A (3.1.6-8.N)

- Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.

Clarifying Statement: Emphasis is on synthesizing information from reliable sources about the influence of humans on genetic outcomes in artificial selection (such as genetic modification, animal husbandry, gene therapy); and, on the impacts these technologies have on society as well as the technologies leading to these scientific discoveries.

Assessment Boundary: N/A (3.1.6-8.R)

- Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

Clarifying Statement: Emphasis is on using simple probability statements and proportional reasoning to construct explanations.

Assessment Boundary: N/A (3.1.6-8.S)

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully

- Variations of inherited traits between parent and offspring arise from genetic differences that result form the subset of chromosomes. (N) (K6)
- In artificial selection, humans have the capacity to influence certain characteristics of organisms by selective breeding. (R) (K7)
- Natural selection leads to the predominance of certain traits in a population, and the suppression of others. (S) (K8)

contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. (PCVL.CO)

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. (PCVL.IPS)



U3 - Taxonomy and Evolution

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 7 Science	77 Day(s)	7	Science	Kerry Risser, Allison Zmuda, Ramon Rivera, Alexis Harmon, Wesley Maloney
Focus					
What amazing secrets could we uncover by exploring the dazzling variety of life on Earth? Uncover the secrets of life's grand design, where every species, from the tiniest microbe to the majestic blue whale, is intricately connected in a mesmerizing tapestry of adaptation and survival. Dive into the adventure of understanding how life diversifies, adapts, and flourishes, revealing the awe-inspiring story of our shared biological heritage.					
Stage 1: Learning Goals					
Established Goals			Transfer		
Standards			Long-Term Transfer Goals		
Pennsylvania Academic Standards Science (2023): 6-8 Standards ■ Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. Clarifying Statement: Emphasis is on the conceptual understanding that cells form tissues and tissues form organs specialized for particular body functions. Examples could include the interaction of subsystems within a system and the normal functioning of those systems. Assessment Boundary: Assessment does			What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to... ■ Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) (T1)		
			Meaning		
			Understandings	Essential Questions	
			What specifically do you want students to understand? What inferences should they make? Students will understand that... ■ Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth. (U1)	What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering... ■ How do organisms grow and develop? (Q1) ■ What evidence supports that different species are related? (Q2)	

not include the mechanism of one body system independent of others. Assessment is limited to the circulatory, excretory, digestive, respiratory, muscular, and nervous systems. (3.1.6-8.C)

- Use arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants, respectively.

Clarifying Statement: Examples of behaviors that affect the probability of animal reproduction could include nest building to protect young from cold, herding of animals to protect young from predators, and vocalization of animals and colorful plumage to attract mates for breeding. Examples of animal behaviors that affect the probability of plant reproduction could include transferring pollen or seeds, and creating conditions for seed germination and growth. Examples of plant structures could include bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, and hard shells on nuts that squirrels bury.

Assessment Boundary: N/A (3.1.6-8.D)

- Apply scientific ideas to construct an explanation for anatomical similarities and differences among modern organisms and between modern and fossil organisms to

- Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring resemble, but are not identical to, their parents. (U2)

- How do scientists classify and organize living organisms, and what criteria are used in the classification process? (Q3)
- What evidence supports the theory of evolution, and how has our understanding of evolution changed over time? (Q4)
- How do fossils or embryos provide evidence for evolutionary change, and what can they tell us about ancient life forms? (Q5)

Acquisition of Knowledge & Skill

Knowledge	Skills
What facts and basic concepts should students know and be able to recall? Students will know... ■ Animals engage in characteristic behaviors that increase the odds of reproduction. (D) (K1) ■ Anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. (P) (K2) ■ Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully formed anatomy. (Q) (K3)	What discrete skills and processes should students be able to use? Students can... ■ I can describe how organisms grow and develop. (S1) ■ I have researched evidence that supports how different species are related. (S2) ■ I can explain the principles and importance of taxonomy in organizing and classifying living organisms. (S3) ■ I can classify organisms based on their physical characteristics and genetic relationships. (S4) ■ I can describe evidence for evolution, including fossil records, comparative anatomy, and molecular biology. (S5) ■ I can explain how environmental factors and changes influence evolutionary processes. (S6)

infer evolutionary relationships.

Clarifying Statement: Emphasis is on explanations of the evolutionary relationships among organisms in terms of similarity or differences of the gross appearance of anatomical structures.

Assessment Boundary: N/A (3.1.6-8.P)

- Analyze displays of pictorial data to compare patterns of similarities in anatomical structures across multiple species to identify relationships not evident in the fully formed anatomy.

Clarifying Statement: Emphasis is on inferring general patterns of relatedness among embryos of different organisms by comparing the macroscopic appearance of diagrams or pictures.

Assessment Boundary: Assessment of comparisons is limited to gross appearance of anatomical structures in embryological development. (3.1.6-8.Q)

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. (PCVL.IPS)



U4 - Ecology and Environmental Issues

Draft Date 06-07-2024	Course Grade 7 Science	Duration 34 Day(s)	Grades 7	Subjects Science	Team Kerry Risser, Allison Zmuda, Ramon Rivera, Alexis Harmon, Wesley Maloney
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Focus

How do living organisms interact with each other and their environment to shape the world around us? Embark on an adventure into the fascinating world of ecology, where you'll explore the interconnected web of life that sustains our planet! Uncover the secrets of ecosystems, witness the wonders of nature, and become inspired to protect and preserve the incredible diversity of life around us.

Stage 1: Learning Goals

Established Goals	Transfer	
Standards	Long-Term Transfer Goals	
Pennsylvania Academic Standards Science (2023): 6-8 Standards ■ Use arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants, respectively. Clarifying Statement: Examples of behaviors that affect the probability of animal reproduction could include nest building to protect young from cold, herding of animals to protect young from predators, and vocalization of animals and	What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to... ■ Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) (T1)	
	Meaning	
	Understandings	Essential Questions
	What specifically do you want students to understand? What inferences should they make? Students will understand that... ■ Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment. (U1) ■ Biological evolution explains both the unity and diversity of species and	What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering... ■ How do organisms interact with the living and nonliving environments to obtain matter and energy? (Q1) ■ How do matter and energy move through an ecosystem? (Q2) ■ How does a change in environment impact ecosystems? (Q3)

colorful plumage to attract mates for breeding. Examples of animal behaviors that affect the probability of plant reproduction could include transferring pollen or seeds, and creating conditions for seed germination and growth. Examples of plant structures could include bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, and hard shells on nuts that squirrels bury.

Assessment Boundary: N/A (3.1.6-8.D)

- **Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.**

Clarifying Statement: Emphasis is on cause and effect relationships between resources and growth of individual organisms and the numbers of organisms in ecosystems during periods of abundant and scarce resources.

Assessment Boundary: N/A (3.1.6-8.I)

- **Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.**

Clarifying Statement: Emphasis is on predicting consistent patterns of interactions in different ecosystems in terms of the relationships among and between organisms and abiotic

provides a unifying principle for the history and diversity of life on Earth. (U2)

- Watersheds and wetlands function as interconnected systems that support, impact, and are influenced by living things. (U3)
- Human actions impact the functions of watersheds and wetlands. (U4)
- Human actions improve environmental quality, sustainability, and community well-being. (U5)

- How does the environment influence populations of organisms over multiple generations? (Q4)
- How do humans affect biodiversity, and how does it affect humans? Mutually impact? (Q5)

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall?
Students will know...

- Organisms and populations are dependent on their environmental interactions both with other living things (**biotic**) and with nonliving (**abiotic**) factors. (I) (K1)
- In any **ecosystem, organisms** and **populations** with similar requirements for food, water, oxygen, or other resources may compete with each other for **limited resources**, access to which consequently constrains their growth and reproduction. (I) (K2)
- **Predatory** interactions may reduce the number of organisms or eliminate whole populations of organisms. (J) (K3)
- In ecosystems, organisms fulfill various roles or niches, including different

Skills

What discrete skills and processes should students be able to use? Students can...

- I can figure out and describe how organisms interact with the living and nonliving environments to obtain matter and energy. (S1)
- I can show how matter and energy move through an ecosystem. (S2)
- I can show how a change in environment impacts ecosystems. (S3)
- I can describe how the environment influences populations of organisms over multiple generations. (S4)
- I can show how humans affect biodiversity and how it affects humans. (S5)

components of ecosystems. Examples of types of interactions could include competitive, predatory, and mutually beneficial.

Assessment Boundary: N/A (3.1.6-8.J)

- **Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.**

Clarifying Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems, and on defining the boundaries of the system.

Assessment Boundary: Assessment does not include the use of chemical reactions to describe the processes. (3.1.6-8.K)

- **Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.**

Clarifying Statement: Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes to ecosystems.

Assessment Boundary: N/A (3.1.6-8.L)

- **Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations**

types of symbiotic relationships and ecological roles such as producers, consumers, and decomposers, all of which contribute to the balance and functioning of the environment. (K4)

- Species involved in **competitive, predatory**, and mutually beneficial interactions vary across ecosystems. (J) (K5)
- Decomposers recycle nutrients from dead plant or animal matter back into the soil in terrestrial environments or water in aquatic environments, with transfers of matter occurring at every level of the energy diagram, and food webs serving as models to demonstrate how matter and energy flow between producers, consumers, and decomposers. (K6)
- The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. (K) (K7)
- Ecosystems are dynamic in nature; their characteristics can vary over time. (L) (K8)
- Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations. (L) (K9)
- **Adaptation** over generations is one important process by which species change over time in response to changes in environmental conditions. (T) (K10)

over time.

Clarifying Statement: Emphasis is on using mathematical models, probability statements, and proportional reasoning to support explanations of trends in changes to populations over time.

Assessment Boundary: Assessment does not include Hardy Weinberg calculations. (3.1.6-8.T)

- Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

Clarifying Statement: Examples of ecosystem services could include water purification, nutrient recycling, and prevention of soil erosion. Examples of design solution constraints could include scientific, economic, and social considerations.

Assessment Boundary: N/A (3.1.6-8.U)

**Environmental Literacy & Sustainability (2023):
6-8 Environmental Literacy & Sustainability**

- Develop a model to describe how watersheds and wetlands function as systems, including the roles and functions they serve. (3.4.6-8.C)
- Obtain and communicate information on how integrated pest management could improve indoor and outdoor environments. (3.4.6-8.F)

- Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common, thus, the distribution of traits in a population changes. (T) (K11)
- Changes in **biodiversity** can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on. (U) (K12)

- **Design a solution to an environmental issue in which individuals and societies can engage as stewards of the environment.** (3.4.6-8.H)

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. (PCVL.CO)
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. (PCVL.GC)