NM Public Education Department

SCIENCE:
7th Grade
Life Science

END-OF-COURSE EXAM | GRADE 7 | YEAR 18–19

ASSESSMENT BLUEPRINT

Purpose Statement
7th Grade Life Science Concentration

The 7th Grade Life Science End-of-Course (EOC) exam is intended to measure student proficiency of the New Mexico STEM Ready! Science Standards. This course-level exam is provided to all students who have completed 7th Grade Life Science or a related course. This exam can be given for the following STARS course code:

1707 – Life Science

Intended as a final exam for the course, this is a summative assessment covering a range of content, skills, and applications. Scores are reported to the teacher, school, district, and state levels for the purposes of student grades, curriculum review, and NMTeach summative reports.

"The EOCs are exams written by New Mexico Teachers for New Mexico Students."
During the 2018 summer, teachers were brought together in person or online as part of the blueprint and exam revision process. The NM PED extends our gratitude to all those who contributed to this improvement process. Although we were unable to implement every suggestion due to conflicting viewpoints at times, this blueprint reflects the best collaborative effort among dedicated peers.

The NM PED would like to especially recognize the following people who led the revision of this blueprint:

- *Joe Dan Lovato, La Resolana Leadership Academy, Content Lead*
- *Sandra Beaudet, The ASK Academy*
- *Tammy Hernandez, North Valley Academy*
- *Christy Krenek, Santa Fe Public Schools*
- *Ella Rael, Taos Municipal Schools*
- *Saji Sebastian, Gallup-McKinley County Schools*
- *Nancy Smith, Tucumcari Public Schools*

Explanation of Blueprint Layout & Test Specifications Table

Topics	Clarifications on Test Item Specifications:
The performance expectations (PEs) identified in this portion of the blueprint are aligned to the New Mexico STEM Ready! Science Standards. *The PEs have been deconstructed to highlight the three dimensionality. Consult your NM STEM Ready! Standards for the full PE:* *https://webnew.ped.state.nm.us/bureaus/math-science/nm-stem-ready-science/nm-stem-ready-science-standards/* *and Middle School Recommended Discipline Specific Course Map:* *https://webnew.ped.state.nm.us/bureaus/math-science/nm-stem-ready-science/nm-stem-ready-science-standards/recommended-secondary-course-maps/* *New Mexico Teachers identified the PEs to be measured on the EOC exam using the following criteria: 1) a great deal of instructional time is spent on the PE as identified in the curriculum and/or; 2) the PE is important to subsequent learning.* *It is important to note that the PEs in the blueprint are only a* ***subset*** *of PEs to be measured with the understanding that teachers cover more PEs during the course of instruction than what has been selected to be measured.*	● *This portion of the blueprint identifies the DCI that students will have to demonstrate knowledge of during the exam. These items are not fully aligned to the Science and Engineering Practices (SEPs) and crosscutting concepts (CCCs).* ● *Although the PE measures other dimensions, the item specifications may place constraints on portions of the DCI in order to provide more transparency as to what specifically will be measured relative to the PE.* ● *Items on this year's NM STEM Ready! transition EOC are content aligned and are items from the existing EOC and/or SBA item banks. PED will be field testing NM STEM Ready! cluster items for EOCs, which are optional for school participation.*
	Item Types: *The item types for this EOC exam are limited to:* *MC = multiple choice with or without stimulus (e.g., picture, graph, chart)*
	Sample Question: *A sample question has been provided for some PEs to assist teachers to correlate the questions with the performance standards and the test item specification, when applicable. Sample questions could not be provided for all PEs due to the limitations in the existing EOC and SBA item bank.* ● *An * or box denotes the correct answer* ● *DOK = Depth of Knowledge* ● *Some sample questions may be items released items from prior EOC exams*

Blueprint Table – 7th Grade Life Science Concentration

Topic: Engineering Design	DCI with Test Item Specifications:
MS-ETS1-2 **SEP**: Evaluate competing design solutions **DCI**: using a systematic process to determine how well they meet the criteria and constraints of the problem **CCC**: None **Clarification Statement:** None **Assessment Boundary:** None	**ETS1.B: Developing Possible Solutions** There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. **Essential Question:** **What is the process for developing potential design solutions?** **Item Types:** *MC = multiple choice with or without stimulus* **Sample Question:** A student models the relationship between populations of predators and prey in an ecosystem. Which method is *best* for the student to choose for this model? (A) Show a video about how predators hunt their prey in the ecosystem. (B) Estimate the number of predators and prey in a given area at any one time. (C) Provide a written description of the feeding habits of the predators and prey. (D) Make a graph that shows the change in the number of predators and prey over 10 years.*

Topic: Engineering Design	DCI with Test Item Specifications:
MS-ETS1-3 **SEP**: Analyze data from tests to determine similarities and differences **DCI**: among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success **CCC**: None **Clarification Statement:** None **Assessment Boundary:** None	**<u>ETS1.B: Developing Possible Solutions</u>** There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. **<u>ETS1.C: Optimizing the Design Solution</u>** Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of those characteristics may be incorporated into the new design. **Essential Questions:** **What is the process for developing potential design solutions?** **How can the various proposed design solutions be compared and improved?**
	Item Types: *MC = multiple choice with or without stimulus*
	Sample Question: Why is it necessary for scientists to compare results from scientific investigations? (A) to make certain that the results are reliable and unbiased* (B) to ensure that the conclusion is popular (C) to find a consumer application for the results (D) to show that the hypothesis should become a scientific law

Topic: Engineering Design	DCI with Test Item Specifications:
MS-ETS1-4 **SEP**: Develop a model to generate data **DCI**: for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved **CCC**: None **Clarification Statement:** None **Assessment Boundary:** None	**<u>ETS1.B: Developing Possible Solutions</u>** A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. Models of all kinds are important for testing solutions. **<u>ETS1.C: Optimizing the Design Solution</u>** The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution. **Essential Questions:** **What is the process for developing potential design solutions?** **How can the various proposed design solutions be compared and improved?**
	Item Types: *MC = multiple choice with or without stimulus*
	Sample Question: A scientist studies how many species of songbirds build nests in a forest during the spring. Which model would be best for the scientist to use to record her observations? (A) A photograph showing each species and its nests. (B) A map showing the locations of the nests of each species. (C) A table showing the quantities of each species and its nests.* (D) A calendar showing the dates that each species made its nests.

Topic: Earth's Systems	DCI with Test Item Specifications:
MS-ESS2-4 **SEP**: Develop a model to describe **DCI**: the cycling of water through Earth's systems, from the sun and the force of gravity **CCC**: as driven by energy **Clarification Statement:** Emphasis is on the ways water changes its state as it moves through the multiple pathways of the hydrologic cycle. Examples of models can be conceptual or physical. **Assessment Boundary:** A quantitative understanding of the latent heats of vaporization and fusion is not assessed.	**<u>ESS2.C: The Roles of Water in Earth's Surface Processes</u>** Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land. Global movements of water and its changes in form are propelled by sunlight and gravity. **Essential Question:** **How do the properties and movements of water shape Earth's surface and affect its systems?**
	Item Types: *MC = multiple choice with or without stimulus*
	Sample Question: Which process adds carbon dioxide to Earth's atmosphere? (A) cellular respiration* (B) photosynthesis (C) protein synthesis (D) none of the above

Topic: Biological Evolution: Unity and Diversity	DCI with Test Item Specifications:
MS-LS4-3 **SEP**: Analyze displays of pictorial data to compare **DCI**: patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy. **CCC**: pictorial data to compare patterns of similarities **Clarification 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.	**<u>LS4.A: Evidence of Common Ancestry and Diversity</u>** Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully-formed anatomy. **Essential Question:** **What evidence shows that different species are related?** **Item Types:** *MC = multiple choice with or without stimulus*

Topic: Biological Evolution: Unity and Diversity	DCI with Test Item Specifications:
MS-LS4-4 **SEP**: Construct an explanation based on evidence that describes how **DCI**: genetic variations of traits in a population and some individuals' probability of surviving and reproducing in a specific environment **CCC**: that describes how … increase **Clarification Statement:** Emphasis is on using simple probability statements and proportional reasoning to construct explanations. **Assessment Boundary:** None	**<u>LS4.B: Natural Selection</u>** Natural selection leads to the predominance of certain traits in a population, and the suppression of others. **Essential Question:** **How does genetic variation among organisms affect survival and reproduction?** **Item Types:** *MC = multiple choice with or without stimulus*

Topic: Biological Evolution: Unity and Diversity	DCI with Test Item Specifications:
MS-LS4-5 **SEP**: Gather and synthesize information about **DCI**: the way humans influence the inheritance of desired traits in organisms. **CCC**: technologies that have changed the way humans influence **Clarification 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:** none	**<u>LS4.B: Natural Selection</u>** In *artificial* selection, humans have the capacity to influence certain characteristics of organisms by selective breeding. One can choose desired parental traits determined by genes, which are then passed onto offspring. **Essential Question:** **Does genetic variation among organisms affect survival and reproduction?** **Item Types:** *MC = multiple choice with or without stimulus*

Topic: Biological Evolution: Unity and Diversity	DCI with Test Item Specifications:
MS-LS4-6 **SEP**: Use mathematical representations to support explanations of how **DCI**: natural selection may lead to increases and decreases of specific traits in populations over time **CCC**: may lead to increases and decreases **Clarification 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	**<u>LS4.C: Adaptation</u>** Adaptation by natural selection acting over generations is one important process by which species change over time in response to changes in environmental conditions. 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. **Essential Question:** **How does the environment influence populations of organisms over multiple generations?** **Item Types:** *MC = multiple choice with or without stimulus* **Sample Question:** The palaeomastodon is an elephant from 38 million years ago that evolved into at least eight different species of elephants. Which of the following is the most likely explanation why Asian and African elephants exist today, but the other six species of elephants do not? (A) While the Asian and African elephants were able to evolve slowly to fit their environment, the other species of elephants evolved too quickly. (B) The other elephant species were unable to mate with the ancestors of the Asian and African elephants. (C) Unlike the ancestors of the Asian and African elephants, the other species of elephants were unable to survive in a changing environment. * (D) The Ancestors of the extinct elephants had genes that were not as strong as the genes seen in modern Asian and African elephants.

Topic: From Molecules to Organisms: Structure and Processes	DCI with Test Item Specifications:
MS-LS1-4 **SEP**: Use argument based on empirical evidence and scientific reasoning to support an explanation for how **DCI**: characteristic animal behaviors and specialized plant structure affect the probability of successful reproduction of animals and plants respectively **CCC**: affect the probability of **Clarification 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:** None	**<u>LS1.B: Growth and Development of Organisms</u>** Animals engage in characteristic behaviors that increase the odds of reproduction. Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction. **Essential Question:** **How do organisms grow and develop?** **Item Types:** *MC = multiple choice with or without stimulus*

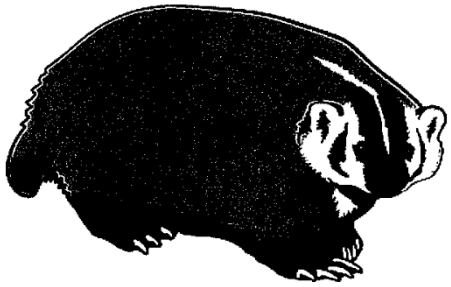
Topic: From Molecules to Organisms: Structure and Processes	DCI with Test Item Specifications:
MS-LS1-6 **SEP**: Construct a scientific explanation based on evidence for **DCI**: the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms **CCC**: the cycling of matter and flow of energy **Clarification Statement:** Emphasis is on tracing movement of matter and flow of energy. **Assessment Boundary***:* Assessment does not include the biochemical mechanisms of photosynthesis.	**<u>LS1.C: Organization for Matter and Energy Flow in Organisms</u>** Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use. **<u>PS3.D: Energy in Chemical Processes and Everyday Life</u>** The chemical reaction by which plants produce complex food molecules (sugars) requires an energy input (i.e., from sunlight) to occur. In this reaction, carbon dioxide and water combine to form carbon-based organic molecules and release oxygen. **Essential Questions:** **How do organisms obtain and use the matter and energy they need to live and grow?** **How do food and fuel provide energy?** **If energy is conserved, why do people say it is produced or used?**
	Item Types: *MC = multiple choice with or without stimulus*

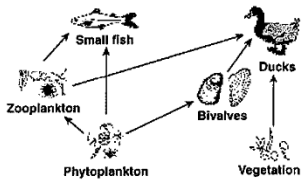
Topic: From Molecules to Organisms: Structure and Processes	DCI with Test Item Specifications:
MS-LS1-7 **SEP**: Develop a model to describe how **DCI**: food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this energy moves through an organism **CCC**: food is rearranged through chemical reactions forming new molecules … as this matter moves **Clarification Statement:** Clarification 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.	**<u>LS1.C: Organization for Matter and Energy Flow in Organisms</u>** Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy. **<u>PS3.D: Energy in Chemical Processes and Everyday Life</u>** Cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials. **Essential Questions:** **How do organisms obtain and use the matter and energy they need to live and grow?** **How do food and fuel provide energy?** **If energy is conserved, why do people say it is produced or used?**
	Item Types: *MC = multiple choice with or without stimulus*
	Sample Question: Which process adds carbon dioxide to Earth's atmosphere? (A) cellular respiration* (B) photosynthesis (C) protein synthesis (D) none of the above

Topic: Heredity: Inheritance and Variation of Traits	DCI with Test Item Specifications:
MS-LS3-1 **SEP**: Develop and use a model to describe why **DCI**: 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 **CCC**: to the structure and function **Clarification 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.	**<u>LS3.A: Inheritance of Traits</u>** Genes are located in the chromosomes of cells, with each chromosome pair containing two variants of each of many distinct genes. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits of the individual. Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits. **<u>LS3.B: Variation of Traits</u>** In addition to variations that arise from sexual reproduction, genetic information can be altered because of mutations. Though rare, mutations may result in changes to the structure and function of proteins. Some changes are beneficial, others harmful, and some neutral to the organism. **Essential Questions:** **How are the characteristics of one generation related to the previous generation?** **What evidence shows that different species are related?** **Item Types:** *MC = multiple choice with or without stimulus*

Topic: Heredity: Inheritance and Variation of Traits	DCI with Test Item Specifications:
MS-LS3-2 **SEP**: Develop and use a model to describe why **DCI**: asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. **CCC**: results in **Clarification Statement:** Emphasis is on using models such as Punnett squares, diagrams, and simulations to describe the cause and effect relationship of gene transmission from parent(s) to offspring and resulting genetic variation. **Assessment Boundary:** None	**<u>LS1.B: Growth and Development of Organisms</u>** Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring. **<u>LS3.A: Inheritance of Traits</u>** Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited. **<u>LS3.B: Variation of Traits</u>** In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other. **Essential Questions:** **How do organisms grow and develop?** **How are the characteristics of one generation related to the previous generation?** **Why do individuals of the same species vary in how they look, function, and behave?**
	Item Types: *MC = multiple choice with or without stimulus*
	Sample Question: Which of the following is an example of a learned behavior rather than an inherited characteristics? (A) Eye color (B) Bone structure (C) Swimming ability * (D) Attached earlobes

Topic: Ecosystems: Interactions, Energy, and Dynamics	DCI with Test Item Specifications:
MS-LS2-1 **SEP**: Analyze and interpret data to provide evidence for **DCI**: the effects of resource availability on organisms and populations of organisms in an ecosystem **CCC**: the effects of **Clarification 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:** None	**<u>LS2.A: Interdependent Relationships in Ecosystems</u>** Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. 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. Growth of organisms and population increases are limited by access to resources. **Essential Question:** **How do organisms interact with the living and nonliving environments to obtain matter and energy?**
	Item Types: *MC = multiple choice with or without stimulus*
	Sample Question:  Together, all of the organisms shown in the illustration make up a — A. niche B. family C. species [D.] community

Topic: Ecosystems: Interactions, Energy, and Dynamics	DCI with Test Item Specifications:
MS-LS2-2 **SEP**: Construct an explanation that predicts **DCI**: patterns of interactions among organisms across multiple ecosystems **CCC**: predicts patterns of interactions **Clarification Statement:** Emphasis is on predicting consistent patterns of interactions in different ecosystems in terms of the relationships among and between organisms and abiotic components of ecosystems. Examples of types of interactions could include competitive, predatory, and mutually beneficial. **Assessment Boundary:** None	**<u>LS2.A: Interdependent Relationships in Ecosystems</u>** Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival. Although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments, both living and nonliving, are shared. **Essential Question:** **How do organisms interact with the living and nonliving environments to obtain matter and energy?**
	Item Types: *MC = multiple choice with or without stimulus*
	Sample Question: A badger is shown below.  Which characteristic of badgers is *most* likely a result of their environment? A. Badgers produce one litter of offspring each year. B. Badgers release an unpleasant odor when they are threatened. C. Badgers have a stripe along their backs between their nose and tail. D. Badgers become active at night when they are disturbed by human activities.

Topic: Ecosystems: Interactions, Energy, and Dynamics	DCI with Test Item Specifications:
MS-LS2-3 **SEP**: Develop a model to describe **DCI**: the cycling of matter and flow of energy among living and nonliving parts of an ecosystem **CCC**: the cycling of matter and flow of energy **Clarification 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.	**<u>LS2.B: Cycle of Matter and Energy Transfer in Ecosystems</u>** Food webs are models that demonstrate how matter and energy is transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem. Transfers of matter into and out of the physical environment occur at every level. Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments. The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. **Essential Question:** **How do matter and energy move through an ecosystem?**
	Item Types: *MC = multiple choice with or without stimulus*
	Sample Question: The food web below shows some organisms living in a bay ecosystem. **Bay Food Web**  Some metals are carried into the bay by runoff. Based on this food web, which statement describes the *most* likely path by which the ducks could ingest the metals? A. The vegetation absorbs the metals; then the ducks eat the vegetation. B. The phytoplankton filter the metals out of the water; then the ducks eat the phytoplankton. C. The phytoplankton absorb the metals; then the small fish eat the phytoplankton and the ducks eat the small fish. D. The bivalves filter the metals out of the water; then the zooplankton eat the bivalves and the ducks eat the zooplankton.

Topic: Ecosystems: Interactions, Energy, and Dynamics	DCI with Test Item Specifications:
MS-LS2-4 **SEP**: Construct an argument supported by empirical evidence that **DCI**: changes to physical or biological components of an ecosystem affect populations. **CCC**: changes to physical or biological components … affect populations. **Clarification 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:** None	**<u>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</u>** Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations. **Essential Question:** **What happens to ecosystems when the environment changes?** **Item Types:** *MC = multiple choice with or without stimulus* **Sample Question:** The table below shows the alleles that determine fur color in a species of rabbit. **Alleles and Fur Color in Rabbits** Alleles: GG, Gg, gg Fur Color: Gray, Gray, White Predators catch approximately 30% of the gray rabbits and 90% of the white rabbits that are born in each generation. Which statement describes how predation will *most* likely affect the rabbit species over time? A. Genetic diversity of the species will decrease. B. White rabbits will become faster than gray rabbits. C. More white rabbits than gray rabbits will be produced. D. Genetic diversity will increase due to sexual reproduction.

Topic: Ecosystems: Interactions, Energy, and Dynamics	DCI with Test Item Specifications:
MS-LS2-5 **SEP**: Evaluate competing design solutions **DCI**: design solutions for biodiversity and ecosystem services **CCC**: competing design solutions for maintaining **Clarification 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:** None	**LS2.C: Ecosystem Dynamics, Functioning, and Resilience** Biodiversity describes the variety of species found in Earth's terrestrial and oceanic ecosystems. The completeness or integrity of an ecosystem's biodiversity is often used as a measure of its health. **LS4.D: Biodiversity and Humans** Changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on—for example, water purification and recycling. *(secondary)* **ETS1.B: Developing Possible Solutions** There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. *(secondary)* **Essential Questions:** **What happens to ecosystems when the environment changes?** **What is biodiversity, how do humans affect it, and how does it affect humans?** **What is the process for developing potential design solutions?**
	Item Types: *MC = multiple choice with or without stimulus*

7th Grade Life Science Concentration Reporting Category Alignment Framework					
Reporting Category	**Performance Expectation**	**DOK (Count by DOK)**			**Grand Total**
		1	**2**	**3**	
Engineering Design	MS-ETS1-1				
	MS-ETS1-2				
	MS-ETS1-3				
	MS-ETS1-4				
Earth's Systems	MS-ESS2-1				
	MS-ESS2-4		1	2	**3**
Earth and Human Activity	MS-ESS3-1				
Biological Evolution: Unity and Diversity	MS-LS4-3		1		**1**
	MS-LS4-4	1	2		**3**
	MS-LS4-5				
	MS-LS4-6	1	2		**3**
From Molecules to Organisms: Structure and Processes	MS-LS1-1				
	MS-LS1-2				
	MS-LS1-3				
	MS-LS1-4		1		**1**
	MS-LS1-5				
	MS-LS1-6				
	MS-LS1-7		1		**1**
	MS-LS1-8				
Heredity: Inheritance and Variation of Traits	MS-LS3-1	2	1		**3**
	MS-LS3-2		3		**3**
Ecosystems: Interactions, Energy, and Dynamics	MS-LS2-1	2	3		**5**
	MS-LS2-2	2	2	1	**5**
	MS-LS2-3	2	3		**5**

	MS-LS2-4	2	3		**5**
	MS-LS2-5	2			**2**
	Grand Total	**14**	**23**	**3**	**40**