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Elevate Science
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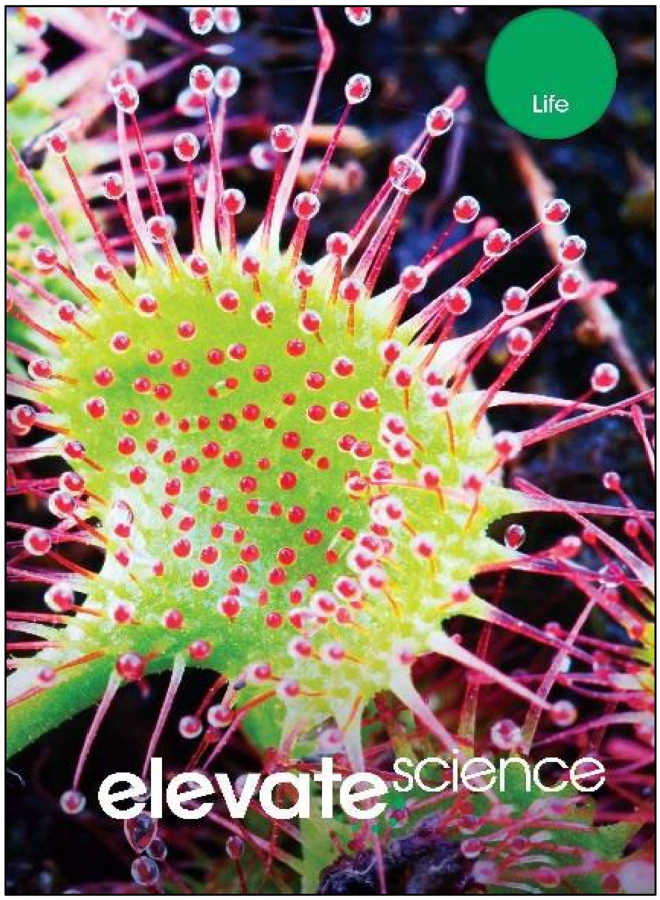

To the

North Dakota
Science Content Standards 2019
Middle School Life Science

Prepared by Savvas Learning Company, formerly Pearson K12 Learning.

Introduction

This document demonstrates how ***Elevate Science: Life, ©2019*** meets the North Dakota Science Content Standards for Middle School. Correlation page references are to the Student and Teacher's Editions and cited at the page level.

Pearson is proud to introduce ***Elevate Science*** Middle Grades – where exploration is the heart of science! Designed to address the rigors of new science standards, students will experience science up close and personal, using real-world, relevant phenomena to solve project-based problems. Our newest program prepares students for the challenges of tomorrow, building strong reasoning skills and critical thinking strategies as they engage in explorations, formulate claims, and gather and analyze data that promote evidence-based arguments. The blended print and digital curriculum covers all Next Generation Science Standards at every grade level.

Elevate Science helps teachers transform learning, promote innovation, and manage their classroom.

Transform science classrooms by immersing students in active, three-dimensional learning.
Elevate Science engages students with real-world tasks, open-ended Quests, uDemonstrate performance-based labs, and in the engineering/design process with uEngineer It! investigations.

- A new 3-D learning model enhances best practices.
- Engineering-focused features infuse STEM learning.
- Phenomena-based activities put students at the heart of a Quest for knowledge.

Innovate learning by focusing on 21st century skills.
Students are encouraged to think, collaborate, and innovate! With ***Elevate Science***, students explore STEM careers, experience engineering activities, and discover our scientific and technological world. The content, strategies, and resources of Elevate Science equip the science classroom for scientific inquiry and science and engineering practices.

- Problem-based learning Quests put students on a journey of discovery.
- STEM connections help integrate curriculum.
- Coding and innovation engage students and build 21st century skills.

Manage the classroom with confidence.
Teachers will lead their class in asking questions and engaging in argumentation. Evidence-based assessments provide new options for monitoring student understanding.

- Professional development offers practical point-of-use support.
- Embedded standards in the program allow for easy integration.
- ELL and differentiated instruction strategies help instructors reach every learner.
- Interdisciplinary connections relate science to other subjects.
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Designed for today's classroom, preparing students for tomorrow's world. ***Elevate Science*** promises to:

- Elevate thinking.
- Elevate learning.
- Elevate teaching.

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North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
MS-LS1 From Molecules to Organisms: Structures and Processes	
Performance Standard MS-LS1-1.	
Conduct an investigation to provide evidence that living things are unicellular or multicellular and may have different cell types.	**SE/TE:** 4–15, 26–37, 38–49, 50–57, 59–70, 118–125
Disciplinary Core Ideas	
LS1.A: Structure and Function All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).	**SE/TE:** 4–13, 26–36, 38–49, 62–70, 79–80
Science and Engineering Practices	
- Planning and carrying out investigations - Analyzing and interpreting data	**SE/TE:** 4–13, 26–36, 38–49, 62–70, 79–80
Crosscutting Concepts	
Scale, Proportion, and Quantity Phenomena that can be observed at one scale may not be observable at another scale.	**SE/TE:** 4–13, 26–36, 38–49, 62–70, 79–80
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Develop and use a model to describe the function of a cell as a whole and ways cell parts (organelles) contribute to the cell functions.	**SE/TE:** 30, 38–49, 50–57, 59–70, 72–73, 74–75, 76–81, 82–89, 90–97, 118–121
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LS1.A: Structure and Function Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.	**SE/TE:** 38–49, 62–70, 72–81, 82–89, 90–97
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Structure and Function Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.	**SE/TE:** 38–49, 62–70, 72–81, 82–89, 90–97, 122–125, 188–189

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
Performance Standard MS-LS1-3.	
Use evidence to model how the body is a system of interacting subsystems composed of groups of cells.	**SE/TE:** 38–49, 50–57, 129A–129B, 126–129, 130–138, 140–149, 150–151, 152–162, 164–175, 186–189, 190–193
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LS1.A: Structure and Function In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions.	**SE/TE:** 6, 38–49, 50–57, 79–81, 126–127, 130–138, 140–149, 152–162, 164–175, 186–189, 190–193
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Crosscutting Concepts	
Systems and System Models Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems.	**SE/TE:** 38–49, 50–57, 126–129, 130–138, 139, 140–149, 152–162, 164–175, 186–189, 190–193

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
Performance Standard MS-LS1-4.	
Use evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction.	**SE/TE:** 5–7, 8–9, 194–195, 197A–197B, 208–216, 218–226, 240–243
Disciplinary Core Ideas	
LS1.B: Growth and Development of Organisms 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.	**SE/TE:** 5–7, 8–9, 198, 208–216, 218–226, 237
Science and Engineering Practices	
- Constructing explanations and designing solutions - Engaging in argument from evidence	**SE/TE:** 197A–197B, 208–216, 218–226
Crosscutting Concepts	
Cause and Effect: Mechanism and Prediction Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.	**SE/TE:** 222, 224, 240–241

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Performance Standard MS-LS1-5.	
Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	**SE/TE:** 194–197, 228–237, 238–239, 240–243, 244–247
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Crosscutting Concepts	
Cause and Effect: Mechanism and Prediction Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.	**SE/TE:** 195, 222, 224, 228–237, 241

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Performance Standard MS-LS1-6.	
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.	**SE/TE:** 59, 98–106, 107, 118–119, 272
Disciplinary Core Ideas	
LS1.C: Organization for Matter and Energy Flow in Organisms 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. **PS3.D: Energy in Chemical Processes and Everyday Life** 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. (secondary to MS-LS1-6)	**SE/TE:** 98–106, 117, 276, 280, 312, 330
Science and Engineering Practices	
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Performance Standard MS-LS1-7.	
Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as it moves through an organism.	**SE/TE:** 59, 98–106, 108–115, 116–117, 118–119, 152
Disciplinary Core Ideas	
LS1.C: Organization for Matter and Energy Flow in Organisms 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. **PS3.D: Energy in Chemical Processes and Everyday Life** 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. (secondary to MS-LS1-7)	**SE/TE:** 108–115, 117, 152, 276, 280
Science and Engineering Practices	
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Energy and Matter Matter is conserved because atoms are conserved in physical and chemical processes.	**SE/TE:** 108–115

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MS-LS2 Ecosystems: Interactions, Energy, Dynamics	
Performance Standard MS-LS2-1.	
Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.	**SE/TE:** 248–251, 252–259, 260–261, 282–283, 286–289, 290–291, 299, 304–310, 336–343
Disciplinary Core Ideas	
LS2.A: Interdependent Relationships in Ecosystems • 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.	**SE/TE:** 253–256, 258, 259, 297, 299, 301, 304, 310, 323, 325
Science and Engineering Practices	
Analyzing and Interpreting Data	**SE/TE:** 252–259, 304–310
Crosscutting Concepts	
Cause and Effect Cause and effect relationships may be used to predict phenomena in natural or designed systems.	**SE/TE:** 258, 259, 303

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Performance Standard MS-LS2-2.	
Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.	**SE/TE:** 259, 270, 290–291, 294, 297, 301, 304–310, 324–325, 336-337, 340-343
Disciplinary Core Ideas	
LS2.A: Interdependent Relationships in Ecosystems 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.	**SE/TE:** 295–296, 297–299, 300–302, 304–310, 323, 324–325
Science and Engineering Practices	
- Analyzing and interpreting data - Constructing explanations and designing solutions - Engaging in argument from evidence - Obtaining, evaluating, and communicating information	**SE/TE:** 304-310
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Patterns Patterns can be used to identify cause and effect relationships.	**SE/TE:** 188-189, 304-310

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
Performance Standard MS-LS2-3.	
Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.	**SE/TE:** 59, 98–106, 107, 118–119, 248–251, 251A–251B, 262–270, 271, 272–280, 282–289, 326–334, 340–343
Disciplinary Core Ideas	
LS2.B: Cycle of Matter and Energy Transfer in Ecosystems 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.	**SE/TE:** 262–270, 272–280, 282–285, 286–289, 297–299, 300–302, 323
Science and Engineering Practices	
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Crosscutting Concepts	
Energy and Matter The transfer of energy can be tracked as energy flows through a natural system.	**SE/TE:** 188–189, 242–243, 262–270, 272–280

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Performance Standard MS-LS2-4.	
Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	**SE/TE:** 290–291, 293A–293B, 304–310, 312–323, 324–325, 332, 336–343
Disciplinary Core Ideas	
LS2.C: Ecosystem Dynamics, Functioning, and Resilience 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.	**SE/TE:** 238–239, 260–261, 304–310, 312–323
Science and Engineering Practices	
Engaging in Argument from Evidence	**SE/TE:** 293A–293B, 304–310, 312–323
Crosscutting Concepts	
Stability and Change Small changes in one part of a system might cause large changes in another part.	**SE/TE:** 304–310, 312–323

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
Performance Standard MS-LS2-5.	
Evaluate competing design solutions for maintaining biodiversity and ecosystem services.	**SE/TE:** 290–293, 312–323, 326–334, 335
Disciplinary Core Ideas	
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 to MS-LS2-5)	**SE/TE:** 152, 312–323, 326–334
Science and Engineering Practices	
- Constructing explanations and designing solutions - Engaging in argument from evidence - Obtaining, evaluating, and communicating information	**SE/TE:** 312–323, 326–334
Crosscutting Concepts	
Stability and Change Small changes in one part of a system might cause large changes in another part. **Connections to Engineering, Technology, and Applications of Science** The use of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time. **Connections to Nature of Science** Scientific knowledge can describe the consequences of actions but does not necessarily prescribe the decisions that society takes.	**SE/TE:** 312–323, 326–334

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
MS-LS3 Heredity: Inheritance and Variation of Traits	
Performance Standard MS-LS3-1.	
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.	**SE/TE:** 358–359, 370–378, 380–391, 457–461
Disciplinary Core Ideas	
LS3.A: Inheritance of Traits 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. **LS3.B Variation of Traits** 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.	**SE/TE:** 361–363, 368, 370–378, 380–391, 402–403, 430–431, 436–437, 441, 457–461, 464, 466–467
Science and Engineering Practices	
Developing and Using Models	**SE/TE:** 370–378, 380–391
Crosscutting Concepts	
Structure and Function Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.	**SE/TE:** 370-378, 380-391

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Performance Standard MS-LS3-2.	
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.	**SE/TE:** 194–195, 198–207, 212, 216, 240–241, 347A–347B, 348–357, 358–359, 360–368
Disciplinary Core Ideas	
LS3.A: Inheritance of Traits Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited. I **LS3.B: Variation of Traits** 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. **LS1.B: Growth and Development of Organisms** Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring. *(secondary to MS-LS3-2)*	**SE/TE:** 198–207, 212, 216, 240–241, 346–357, 360–368, 370, 380–383, 392, 415
Science and Engineering Practices	
Developing and Using Models Develop and use a model to describe phenomena.	**SE/TE:** 198–207, 347A–347B, 348–357, 360–368
Crosscutting Concepts	
Cause and Effect Cause and effect relationships may be used to predict phenomena in natural or designed systems.	**SE/TE:** 198–207, 348–357, 360–368

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MS-LS4 Biological Evolution: Unity and Diversity	
Performance Standard MS-LS4-1.	
Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.	**SE/TE:** 413A–413B, 442–455
Disciplinary Core Ideas	
LS4.A: Evidence of Common Ancestry and Diversity The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found or through radioactive dating) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth.	**SE/TE:** 415, 418, 419, 423, 442–455, 465
Science and Engineering Practices	
Analyzing and Interpreting Data	**SE/TE:** 413A-413B, 442-453
Crosscutting Concepts	
Patterns -Graphs and charts can be used to identify patterns in data. Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.	**SE/TE:** 383, 442-453

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
Performance Standard MS-LS4-2.	
Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.	**SE/TE:** 2–3, 22–25, 50–51, 418, 442–455, 456–464
Disciplinary Core Ideas	
LS4.A: Evidence of Common Ancestry and Diversity 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.	**SE/TE:** 2–3, 25, 50–51, 419, 442–455, 456–464, 465
Science and Engineering Practices	
Constructing Explanations and Designing Solutions	**SE/TE:** 25, 442–455, 456–464
Crosscutting Concepts	
Patterns Patterns can be used to identify cause and effect relationships.	**SE/TE:** 25, 442–455, 456–464
Performance Standard MS-LS4-3.	
Analyze displays of pictorial data to compare patterns of similarities and differences in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.	**SE/TE:** 442-453
Disciplinary Core Ideas	
LS4.A: Evidence of Common Ancestry and Diversity Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully-formed anatomy.	**SE/TE:** 442-453
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Patterns Graphs, charts, and images can be used to identify patterns in data.	**SE/TE:** 442-453

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Performance Standard MS-LS4-4.	
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.	**SE/TE:** 205, 207, 358–359, 414–423, 424–432, 434–441
Disciplinary Core Ideas	
LS4.B: Natural Selection Natural selection leads to the predominance of certain traits in a population, and the suppression of others.	**SE/TE:** 295–296, 357, 414–423, 424–432, 434–441, 464, 466-467
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- Constructing Explanations and Designing Solutions - Analyzing and Interpreting Data	**SE/TE:** 205, 207, 404–405, 414–423, 424–432, 434–435, 442–453
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Cause and Effect Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.	**SE/TE:** 205, 207, 414–423, 424–432, 434–441

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Performance Standard MS-LS4-5.	
Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.	**SE/TE:** 392–401, 424–432
Disciplinary Core Ideas	
LS4.B: Natural Selection 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 on to offspring.	**SE/TE:** 357, 392–401, 424–432
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Asking questions and defining problems	**SE/TE:** 392–401, 424–432
Crosscutting Concepts	
Cause and Effect Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability. Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineering systems.	**SE/TE:** 353–355, 392–401, 424–432

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
Performance Standard MS-LS4-6.	
Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.	**SE/TE:** 295–296, 424–432, 434–441, 442–453, 456–464
Disciplinary Core Ideas	
LS4.C: Adaptation 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.	**SE/TE:** 205–206, 295–296, 310, 353, 357, 420–421, 424–432, 434–441, 464
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Crosscutting Concepts	
Cause and Effect Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.	**SE/TE:** 295–296, 411–413, 424–432, 434–441

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
MS-ETS1 Engineering Design	
Performance Standard MS-ETS1-1.	
Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	**SE/TE:** 122–125, 292–293, 310, 323, 483 **Digital Activities:** Community Opinions, Research Animal Crossings, To Cross or Not to Cross **Labs:** Design and Model an Animal Crossing EDN: Put Decomposers to Work, Way to Dig, Build a Plant Growth Chamber
Disciplinary Core Ideas	
ETS1.A: Defining and Delimiting Engineering Problems The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.	**SE/TE:** 122–125, 292–293, 310, 323, 483 **Digital Activities:** Community Opinions, Research Animal Crossings, To Cross or Not to Cross **EDN:** Put Decomposers to Work, Way to Dig, Build a Plant Growth Chamber Earth Science
Science and Engineering Practices	
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Crosscutting Concepts	
Systems and System Models All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment. The uses of technologies and limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions.	**SE/TE:** 122–125, 292–293, 310, 323 **Digital Activities:** Mystery at Pleasant Pond, Community Opinions, To Cross or Not to Cross **Labs:** Design and Model an Animal Crossing **EDN:** Build a Plant Growth Chamber

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
Performance Standard MS-ETS1-2.	
Evaluate competing design solutions using systematic process to determine how well they meet the criteria and constraints of the problem.	**SE/TE:** 310, 323 **Labs:** Design and Model an Animal Crossing **EDN:** Put Decomposers to Work
Disciplinary Core Ideas	
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.	**SE/TE:** 310, 323 **Labs:** Design and Model an Animal Crossing **EDN:** Put Decomposers to Work
Science and Engineering Practices	
Obtaining, evaluating, and communicating information	**SE/TE:** 310, 323 **Labs:** Design and Model an Animal Crossing **EDN:** Put Decomposers to Work
Performance Standard MS-ETS1-3.	
Analyze data from tests to determine similarities and differences 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.	**SE/TE:** 52–53, 401, 406–409, 483 **Labs:** Design and Model an Animal Crossing **EDN:** Put Decomposers to Work
Disciplinary Core Ideas	
ET1.B: Developing Possible Solutions - 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. **ET1.C: Optimizing the Design Solution** - 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.	**SE/TE:** 401, 406–409 **Labs:** Design and Model an Animal Crossing **EDN:** Build a Plant Growth Chamber, Put Decomposers to Work

North Dakota Science Content Standards 2019 Middle School Life Science	Elevate Science Life, ©2019
Science and Engineering Practices	
Constructing explanations and designing solutions	**SE/TE:** 401, 406–409 **Labs:** Design and Model an Animal Crossing **EDN:** Put Decomposers to Work
Crosscutting Concepts	
Cause and Effect Relationships can be classified as casual or correlational, and correlation does not necessarily imply causation.	**Labs:** Design and Model an Animal Crossing
Performance Standard MS-ETS1-4.	
Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	**SE/TE:** 122–125, 190–193, 323, 484 **Labs:** Design and Model an Animal Crossing, Modeling a Dam **EDN:** Put Decomposers to Work
Disciplinary Core Ideas	
ETS1.B: Developing Possible Solutions A solution needs to be tested, and then modified based on test results, in order to improve it. Models of all kinds are important for testing solutions. **ET1.C: Optimizing the Design Solution** -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.	**SE/TE:** 122–125, 190–193, 323, 483-484 **Labs:** Design and Model an Animal Crossing, Modeling a Dam **EDN:** Put Decomposers to Work, Way to Dig!
Science and Engineering Practices	
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Crosscutting Concepts	
Cause and effect relationships may be used to predict phenomena in natural or designed systems.	**Labs:** Design and Model an Animal Crossing, Modeling a Dam **EDN:** Put Decomposers to Work, Way to Dig!