

Unit 5: Organisms and Their Environments

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Belleville Public Schools

Curriculum Guide

Unit 5: Organisms and Their Environments

Grade 3

Belleville Board of Education

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Unit Overview

Unit 5: Organisms and Their Environments

In this unit, students will:

- explore inheritance and variation of traits in organisms
- discover how different organisms adapt to their environment
- identify the cause and effect of how organisms change when environments change

Vocabulary

- adaptation
- camouflage
- environment
- habitat
- mimicry
- population

Enduring Understanding

- The environment is made up of all living and non-living things that affect an organisms
- Factors in the environment, like temperature and nutrients, can affect features and traits of plants / animals
- Adaptations help an organism to survive in its environment
- Physical characteristics and useful behaviors are adaptations
- In order to survive, animals need food, shelter, water, and a place to raise their young
- Organisms have traits that allow them to survive in their habitat
- Similar organisms that live in different environments will have different adaptations to better enable them to survive their specific environments
- Animals and plants have many characteristics that help them survive and reproduce
- Living with groups of the same kind helps some animals to survive
- When an environment changes, it affects the plants and animals that live there
- Humans can cause changes in the environment

Essential Questions

- How does the environment affect traits?
- What are adaptations?
- How can organisms succeed in their environments?
- What happens when environments change?
- How do environmental changes affect organisms in an ecosystem?

Exit Skills

By the end of Grade 3, Science Unit 5, the student should be able to:

- explain how the environment may affect organisms
- explain how adaptations help organisms survive
- use evidence to support the explanation that traits can be influenced by the environment
- explain how an organism's characteristics and how being a member of a group may help an organisms survive and reproduce
- construct an argument that some animals form groups that help members survive
- use evidence to construct an explanation for how the variation of characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing
- explain what happens to plants and animals when their sources of food, water, and shelter change
- construct explanations about how environmental changes affect organisms in an ecosystem

New Jersey Student Learning Standards (NJSLS-S)

3-LS2-1	Construct an argument that some animals form groups that help members survive.
3-LS2-1.2.1	Cause and effect relationships are routinely identified and used to explain change.
3-LS2-1.7.1	Construct an argument with evidence, data, and/or a model.
3-LS2-1.LS2.D.1	Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size.
3-LS3-2	Use evidence to support the explanation that traits can be influenced by the environment.
3-LS3-2.2.1	Cause and effect relationships are routinely identified and used to explain change.
3-LS3-2.6.1	Use evidence (e.g., observations, patterns) to support an explanation.
3-LS3-2.LS3.A.1	Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment.
3-LS3-2.LS3.B.1	The environment also affects the traits that an organism develops.
3-LS4-2	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.
3-LS4-4	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
3-LS4-3	Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
3-LS4-2.2.1	Cause and effect relationships are routinely identified and used to explain change.
3-LS4-3.2.1	Cause and effect relationships are routinely identified and used to explain change.
3-LS4-4.4.1	A system can be described in terms of its components and their interactions.
3-LS4-2.6.1	Use evidence (e.g., observations, patterns) to construct an explanation.
3-LS4-3.7.1	Construct an argument with evidence.
3-LS4-4.7.1	Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.
3-LS4-4.LS2.C.1	When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.
3-LS4-2.LS4.B.1	Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.
3-LS4-3.LS4.C.1	For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.
3-LS4-4.LS4.D.1	Populations live in a variety of habitats, and change in those habitats affects the organisms living there.

Interdisciplinary Connections

LA.W.3.1	Write opinion pieces on topics or texts, supporting a point of view with reasons.
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LA.RI.3.1	Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
LA.RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.
LA.RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
LA.SL.3.4	Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
MA.3.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.
MA.3.MD.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.
MA.3.NBT	Number and Operations in Base Ten
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.

Learning Objectives

Students will demonstrate ability to:

- Use evidence to construct an explanation of cause-and-effect relationships between environment and the inheritance and variation of traits of living things
- Develop an understanding of how characteristics can affect the survival and reproduction of an animal
- Explain that these characteristics are part of a system that leads to causes and effects related to survival of the animal
- Engage in arguments from evidence to support claims and opinions
- Construct a cause-and-effect argument on how individual traits or group behavior can increase the chances of an organisms survival
- Explore populations that live in a variety of environments
- Examine how changes in environments affect organisms
- Generate explanations and solutions for effects caused by human activity

Suggested Activities & Best Practices

HMH Science Dimensions, Unit 5 - Lesson 1:

- **Engage:** "Can You Solve It?" lesson
- **Explore/Explain:** "Plants and the Environment", "Animals and the Environment" lessons and hands-on activity (Exploration 1 & 2)
- **Elaborate:** Take it Further - Smary Bugs extension activity
- **Evaluate:** "Lesson Check" and "Lesson Roundup" assessments (formative/summative)

HMH Science Dimensions, Unit 5- Lesson 2:

- **Engage:** "Can You Solve It?" lesson
- **Explore/Explain:** Organisms Adapt", "Adaptation and Environment", "Surviving and Thriving lessons and hands-on activity (Exploration 1, 2, 3)
- **Elaborate:** Take It Further - Robotic Adaptations - extension activity
- **Evaluate:** "Lesson Check" and "Lesson Roundup" assessments (formative/summative)

HMH Science Dimensions, Unit 5 - Lesson 3:

- **Engage:** "Can You Solve It?" lesson and hands-on activity
- **Explore/Explain:** "Differences that Win", "Better Together" lessons and hands-on activity (Exploration 1, 2)
- **Elaborate:** "Discover More" extension activity
- **Evaluate:** "Lesson Check" and "Lesson Roundup" assessments (formative/summative)

HMH Science Dimensions, Unit 5 - Lesson 4:

- **Engage:** "Can You Solve It?" lesson and hands-on activity
- **Explore/Explain:** "Everything Changes", "Staying Alive", "Moving on Upstream" lessons and hands-on activity (Exploration 1, 2,3)
- **Elaborate:** Take It Further extension activity
- **Evaluate:** "Lesson Check" and "Lesson Roundup" assessments (formative/summative)

HMH Science Dimensions, Unit 5 - Performance Task (Change It Up)

HMH Science Dimensions, Unit 5 - Unit Project (Lucky Layers):

- Research and Plan
- Analyze Results
- Restate Question
- Claims, Evidence, and Reasoning

Evidence of Student Learning - Checking for Understanding (CFU)

- Anticipation Guide
- Compare & Contrast
- Create a Multimedia Poster

- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Self- assessments
- Socratic Seminar
- Study Guide
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Unit tests

Primary Resources & Materials

- HMH Science Dimensions Grade 3, 2018

Ancillary Resources

- Scholastic News
- Science Weekly
- National Geographic Kids
- Bill Nye the Science Guy and appropriate educational videos
- TeacherTube/Youtube

Technology Infusion

- HMH Online Resources
- Brainpop
- SMARTboard
- PowerPoint
- Social Media
- Relevant YouTube/TeacherTube videos
- HMH Science Dimensions Digital Components
- Laptops
- Kahoot

Alignment to 21st Century Skills & Technology

Mastery and infusion of **21st Century Skills & Technology** and their Alignment to the core content areas is essential to student learning. The core content areas include:

- English Language Arts;
- Mathematics;
- Science and Scientific Inquiry (Next Generation);
- Social Studies, including American History, World History, Geography, Government and Civics, and Economics;
- World languages;
- Technology;
- Visual and Performing Arts.

21st Century Skills/Interdisciplinary Themes

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

21st Century Skills

- Environmental Literacy
- Global Awareness
- Health Literacy

Differentiation

Differentiations:

- Small group instruction
- Small group assignments
- Extra time to complete assignments
- Pairing oral instruction with visuals
- Repeat directions
- Use manipulatives
- Center-based instruction
- Token economy
- Study guides
- Teacher reads assessments allowed
- Scheduled breaks
- Rephrase written directions
- Multisensory approaches
- Additional time
- Preview vocabulary
- Preview content & concepts
- Story guides
- Behavior management plan
- Highlight text
- Student(s) work with assigned partner
- Visual presentation
- Assistive technology
- Auditory presentations
- Large print edition
- Dictation to scribe
- Small group setting

Hi-Prep Differentiations:

- Alternative formative and summative assessments
- Choice boards
- Games and tournaments
- Group investigations
- Guided Reading
- Independent research and projects
- Interest groups
- Learning contracts
- Leveled rubrics
- Literature circles
- Multiple intelligence options
- Multiple texts
- Personal agendas
- Project-based learning
- Problem-based learning

- Stations/centers
- Think-Tac-Toes
- Tiered activities/assignments
- Tiered products
- Varying organizers for instructions

Lo-Prep Differentiations

- Choice of books or activities
- Cubing activities
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Jigsaw
- Mini workshops to re-teach or extend skills
- Open-ended activities
- Think-Pair-Share
- Reading buddies
- Varied journal prompts
- Varied supplemental materials

Intervention Strategies

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of work presented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers

- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

Special Education Learning

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multiple test sessions
- multi-sensory presentation
- preferential seating
- preview of content, concepts, and vocabulary
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

English Language Learning (ELL)

- teaching key aspects of a topic. Eliminate nonessential information
- using videos, illustrations, pictures, and drawings to explain or clarify
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;

- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of work presented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

Sample Lesson

Using the template below, please develop a **Sample Lesson** for the first unit only.

Unit Name:

NJSLS:

Interdisciplinary Connection:

Statement of Objective:

Anticipatory Set/Do Now:

Learning Activity:

Student Assessment/CFU's:

Materials:

21st Century Themes and Skills:

Differentiation/Modifications:

Integration of Technology:

