Unit 3: Environments for Living Things (Interdependent Relationships in Ecosystems)

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Title Section

Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Science: Grade 2

Unit 3: Environments for Living Things

Belleville Board of Education

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Unit Overview

In this unit, students will

- investigate what plants and animals need to live and grow.
- develop models to show how plants depend on animals.
- explore environments to identify observable patterns.
- observe plants and animals to compare diversity of life in water habitats.
- observe plants and animals to compare diversity in land habitats.

Lesson 1 Overview:

- Construct an argument with evidence that plants are living things that need certain things to grow and to stay healthy.

Lesson 2 Overview:

- Develop a simple model to show how plants depend on animals within their environment.

Lesson 3 Overview:

- Make observations of plants and animals to compare the diversity of life in water habitats.

Lesson 4 Overview:

- Make observations of plants and animals to compare the diversity of life in land habitats.

Enduring Understanding

Lesson 1 Overview:

- **Enduring Understanding**: the basic needs of plants and what they need to be healthy and grow
- **Essential Question**: What do plants need?

Lesson 2 Overview:

- **Enduring Understanding**: plants depend on animals to help move seeds and pollen
- **Essential Question**: How do plants depend on animals?

Lesson 3 Overview:

- **Enduring Understanding**: specific plants and animals are found in the habitats within ponds, river, and tide pools
- **Essential Question**: What plants and animals live in water habitats?

Lesson 4 Overview:

- **Enduring Understanding**: specific plants and animals are found in the habitats within a rain forest, forest, and savanna
- **Essential Question**: What plants and animals live in land habitats?

Essential Questions

Unit 3 Essential Questions:

- What do plants need to grow?
- What causes plants to change?
- How do plants depend on animals?
- How do animals help plants?
- How do animals spread pollen?
- What plants and animals live in water habitats?

- What lives in a pond? in a river delta? in a tide pool?
- What plants and animals live in land habitats?
- What lives in a rain forest? in a forest? in a savanna?

Exit Skills

By the end of Grade 2, Science Unit 3, the student should be able to:

- identify the basic needs of a plant
- explain how plants depend on animals
- identify the plants and animals that live in water habitats
- identify the plants and animals that live in land habitats

New Jersey Student Learning Standards (NJSLS-S) & NGSS

SEP - Developing and Using Models

SEP - Planning and Carrying Out Investigations

SEP - Scientific Knowledge is Based on Empircal Evidence

DCI - Interdependent Relationships in Ecosystems

DCI - Biodiversity and Humans

DCI - Developing Possible Solutions

CCC - Patterns

CCC - Cause and Effect

CCC - Structure and Function

NextGen Science Standards

2-LS2-1	Plan and conduct an investigation to determine if plants need sunlight and water to grow.
2-LS2-2	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.

Interdisciplinary Connections

Do the Math! pp. 116, 131, 152, 170

MA.2.OA.C.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
MA.2.MD.D.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph.
LA.W.2.7	Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
LA.SL.2.5	Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.

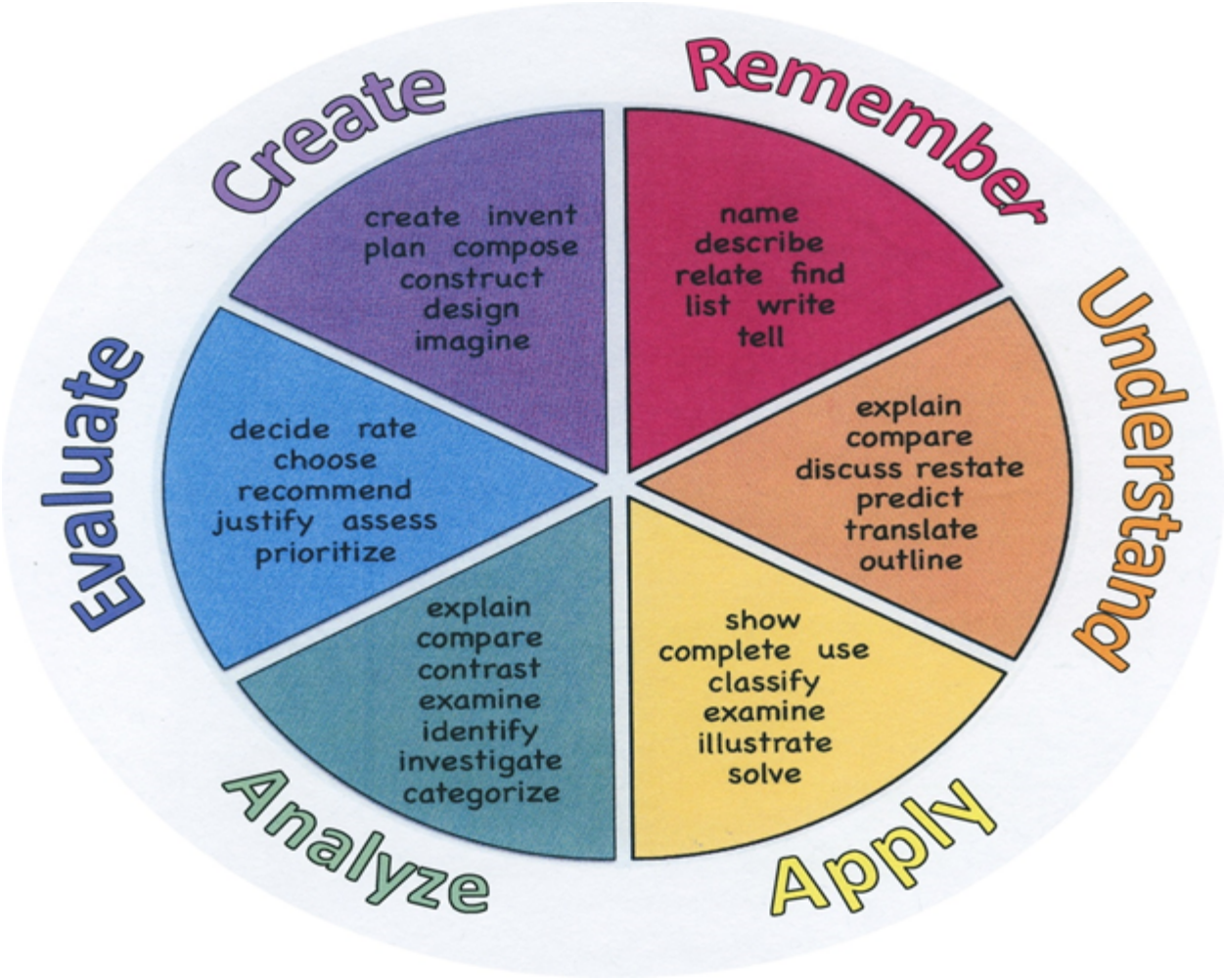
Learning Objectives

Unit 3 Learning Objectives:

- SWBAT: Constuct an argument with evidence that plants are living things that need certain things to grow and to stay healthy.
- SWBAT: Develop a simple model to show how plants depend on animals within their environment.
- SWBAT: Observe plants and animals to compare the diversity of life in water habitats.
- SWBAT: Observe plants and animals to compare the diversity of life in land habitats.

Action Verbs: Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy.

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan
State	Infer	Solve	Breakdown	Measure	Produce
Count	Match	Use	Combine	Rank	Role Play
Draw	Paraphrase	Add	Detect	Rate	Drive
Outline	Represent	Calculate	Diagram	Support	Devise
Point	Restate	Change	Discriminate	Test	Generate
Quote	Rewrite	Classify	Illustrate		Integrate
Recall	Select	Complete	Outline		Prescribe
Recognize	Show	Compute	Point out		Propose
Repeat	Summarize	Discover	Separate		Reconstruct
Reproduce	Tell	Divide			Revise
	Translate	Examine			Rewrite
	Associate	Graph			Transform
	Compute	Interpolate			
	Convert	Manipulate			
	Discuss	Modify			
	Estimate	Operate			
	Extrapolate	Subtract			
	Generalize				
	Predict				



Suggested Activities & Best Practices

- Vocabulary Game- Guess the word
- Unit Project- explore plant habitats
- Student Collaborations to build on prior knowledge
- Hands-on Activity- make a model habitat

Assessment Evidence - Checking for Understanding (CFU)

- Compare & Contrast
- Exit Tickets
- HMH End-of-Year Test (Benchmark)
- HMH Mid-Year Test (Benchmark)
- HMH Performance-based Assessment (Alternative)
- Illustration
- Journals
- Learning Center Activities
- Quizzes (Formative)
- Teacher Observation Checklist
- Think, Pair, Share
- Unit tests (Summative)

Primary Resources & Materials

HMH Science Dimensions: Teacher Edition, Student workbooks, online resources

HMH Equipment & Safety Kits

HMH Science Dimensions S&E Leveled Readers

- On Level: How Do Living Things Survive in their Environment?
- Extra Support: How Do Living Things Survive in their Environment?
- Enrichment: Meet the Amazing Monarch Butterfly

Ancillary Resources

Additional Resources:

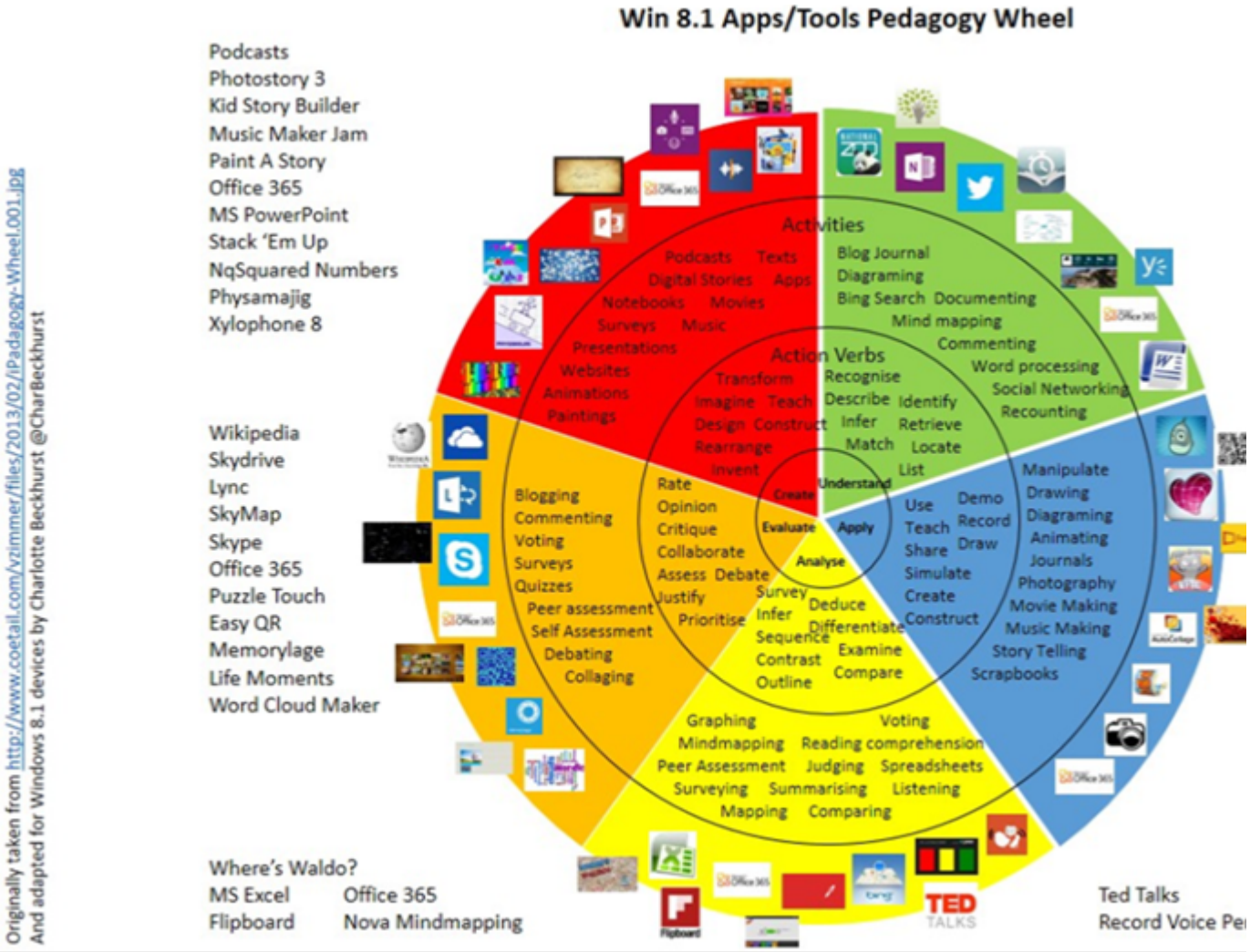
- online resources to provide further information to students
- vocabulary cards
- word wall
- posters and charts

Technology Infusion

Technology available:

- SMART Technology

- Online Websites -
- ReadWorks - article a day - Book of Knowledge - Insects and Animals that Pollinate Plants https://www.readworks.org/article/Insects-and-Animals-that-Pollinate-Plants/75c0d8dc-9b50-4cce-8010-a57d05ef6bda#!articleTab:content/contentSection:c8eaf829-8864-41cf-876b-8323ba263b21/
- PBS website - videos and activities - The Needs of Living Things - https://nj.pbslearningmedia.org/resource/tdc02.sci.life.colt.lp_stayalive/the-needs-of-living-things/
- Computer Access
- Online activities and assessments - kahoot!, quizlet, IXL



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.

CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CAEP.9.2.4.A.4	Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
TECH.8.2.2.C	Design: The design process is a systematic approach to solving problems.

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

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

Differentiation

- Preview vocabulary - have students make a vocabulary flip chart with key terms - determine whether they can use the flip chart during assessment on an individual basis

- Small group instruction - provide scaffolding and modify work based on need/ability - students will either wrie about what plants need in paragraph form, using sentence stems/starters, choose from multiple choice items or photos, or illustrate their answers.

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

Special Education Learning (IEP's & 504's)

- Identify parts of a plant using a word bank and noting how many letters are in each answer. (i.e. if the part they are to identify is a PETAL, write _ _ _ _ _ (5) next to the petal on the diagram) rather than just giving them a word bank to fill in the blank.

- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic devices utilized
- 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
- multi-sensory presentation
- multiple test sessions
- preferential seating
- preview of content, concepts, and vocabulary
- Provide modifications as dictated in the student's IEP/504 plan
- 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)

- Make a trifold (rain forest, forest, and savanna on one side and pond, river delta, and tide pool on the other) or a poster with six sections showing what types of animals live in each of the different environments

- using videos, illustrations, pictures, and drawings to explain or clarif
- 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 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
- teaching key aspects of a topic - eliminate nonessential information
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching or fill in the blank in lieu of essay tests

At Risk

- Have students make their own vocab cards to use when completing classwork and during testing.

- Provide students with a word bank or multiple choice questions when testing vocab.

- allowing students to correct errors (looking for understanding)
- 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 student's 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
- teaching key aspects of a topic - eliminate nonessential information
- 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

Talented and Gifted Learning (T&G)

- Make a trifold (rain forest, forest, and savanna on one side and pond, river delta, and tide pool on the other) or a poster with six sections showing what types of animals live in each of the different environments. Also, they should describe the climate and plant life in each of these environments.

- above grade level placement option for qualified students
- Advanced problem-solving
- allow students to work at a faster pace
- cluster grouping
- complete activities aligned with above grade level text using benchmark results
- create a blog or social media page about their unit
- create a plan to solve an issue presented in the class or in a text
- debate issues with research to support arguments
- flexible skill grouping within a class or across grade level for rigor
- Higher order, critical & creative thinking skills, and discovery
- multi-disciplinary unit and/or project
- teacher-selected instructional strategies that are focused to provide challenge, engagement, and growth opportunities

- utilize exploratory connections to higher-grade concepts
- Utilize project-based learning for greater depth of knowledge