Unit 4 Ecology and the Environment (Life, Physical, Earth and Space Science)

Content Area: **Science**
Course(s): **Science 8**
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Length: **35 Days & Grade 8**
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Title Section

Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Science, Grade 8

Ecology and the Environment

Belleville Board of Education

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Unit Overview

- The theme of this unit is as matter cycles and energy flows through ecosystems they have a dramatic affect in both living an non living things.
- The ideological direction of this unit is that human activities have a major impact on the ecology of our planet. We need to understand those activities that can do the greatest harm to biodiversity and investigate possible solutions.
- Topics covered will include the:
    - Laws of Conservation of Energy and of Matter
    - Transfer and storage of energy in Molecular Bonds
    - Food/Energy Webs
    - Photosynthesis, Cellular Respiration, and Decomposition
    - cycling of energy, water, carbon, and nitrogen
    - role of carbon in the chemistry of life
    - interdependent relationship between living and non-living things
    - resource availability
    - relationship between ecosystem's biodiversity and its ability to change
    - affects of human activities on an ecosystem

- Students should expect to learn:

    - Parts of an ecosystem
    - Symbiotic relationships
    - Matter recycling
    - Resource availability
    - Energy flow
    - Photosynthesis/Cellular Respiration
    - Sources of pollution
    - Interdependence
    - Roles of producer/consumer/decomposer
    - Patterns of interactions
    - Energy pyramid

    - Human impact and habitat destruction
-

Enduring Understanding

- Food is broken down to provide energy for the work that cells do, and is a source of the molecular building blocks from which needed materials are assembled.
- All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products.
- Symbiotic interactions among organisms of different species can be classified as producer/consumer, predator/prey, parasite/host, scavenger/prey, or decomposer, prey.
- Continual input of energy from sunlight keeps matter and energy flowing through ecosystems.
- Biological communities in ecosystems are based on stable interrelationships and interdependence of organisms.
- Stability in an ecosystem can be disrupted by natural or human interactions.

Essential Questions

- How does a system of living and non-living things operate to meet the needs of the organisms in an ecosystem?
- How do ecosystems respond to positive and negative inputs?
- How are species interdependent and interrelated?
- How does the environment regulate population size and ecosystem stability?
- How do changes in populations and communities affect the balance of an ecosystem?
- How do adaptations affect an organism's survival in an ecosystem?
- What resources are available in different environments?
- How are the matter and energy of ecosystems recycled?
- What would happen if there were no decomposers?
- How can biodiversity in ecosystems be maintained?
- What factors influence population changes?

Exit Skills

By the end of this unit students should attain the following skills:

- Define Biosphere, ecosystem, population, community, habitat and niche
- Describe factors that determine population size
- Distinguish between producers, consumers, and decomposers in food webs
- Distinguish between biotic and abiotic factors in ecosystems and give examples.
- Describe cycles of important elements and compounds in ecosystems
- Describe the one-way flow of energy through ecosystems
- Explain primary and secondary succession and climax communities.
- Identify major biomes.
- Distinguish between renewable and nonrenewable resources

- Identify major sources of pollution
- Analyze and interpret data, develop models, and construct arguments and demonstrate a deeper understanding of resources and the cycling of matter and the flow of energy in ecosystems
- Examine patterns of the interactions among organisms within an ecosystem
- Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

New Jersey Student Learning Standards (NJSLS-S)

NextGen Science Standards

6-8.MS-ESS2-1.ESS2.A	Earth's Materials and Systems
6-8.MS-ESS3-1.ESS3.A	Natural Resources
6-8.MS-ESS3-3.ESS3.C	Human Impacts on Earth Systems
6-8.MS-LS2-5	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
6-8.MS-LS2-3	Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
6-8.MS-LS2-2	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
6-8.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.
6-8.MS-LS2-4	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
6-8.MS-LS2-3.LS2.B	Cycle of Matter and Energy Transfer in Ecosystems
6-8.MS-LS2-5.LS2.C	Ecosystem Dynamics, Functioning, and Resilience
6-8.MS-LS2-5.LS4.D	Biodiversity and Humans
6-8.MS-PS1-2.PS1.B	Chemical Reactions

Interdisciplinary Connections

MA.6.RP.A.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
LA.RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
LA.RST.6-8.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
LA.RST.6-8.8	Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
LA.RI.8.8	Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.
LA.WHST.6-8.1	Write arguments focused on discipline-specific content.

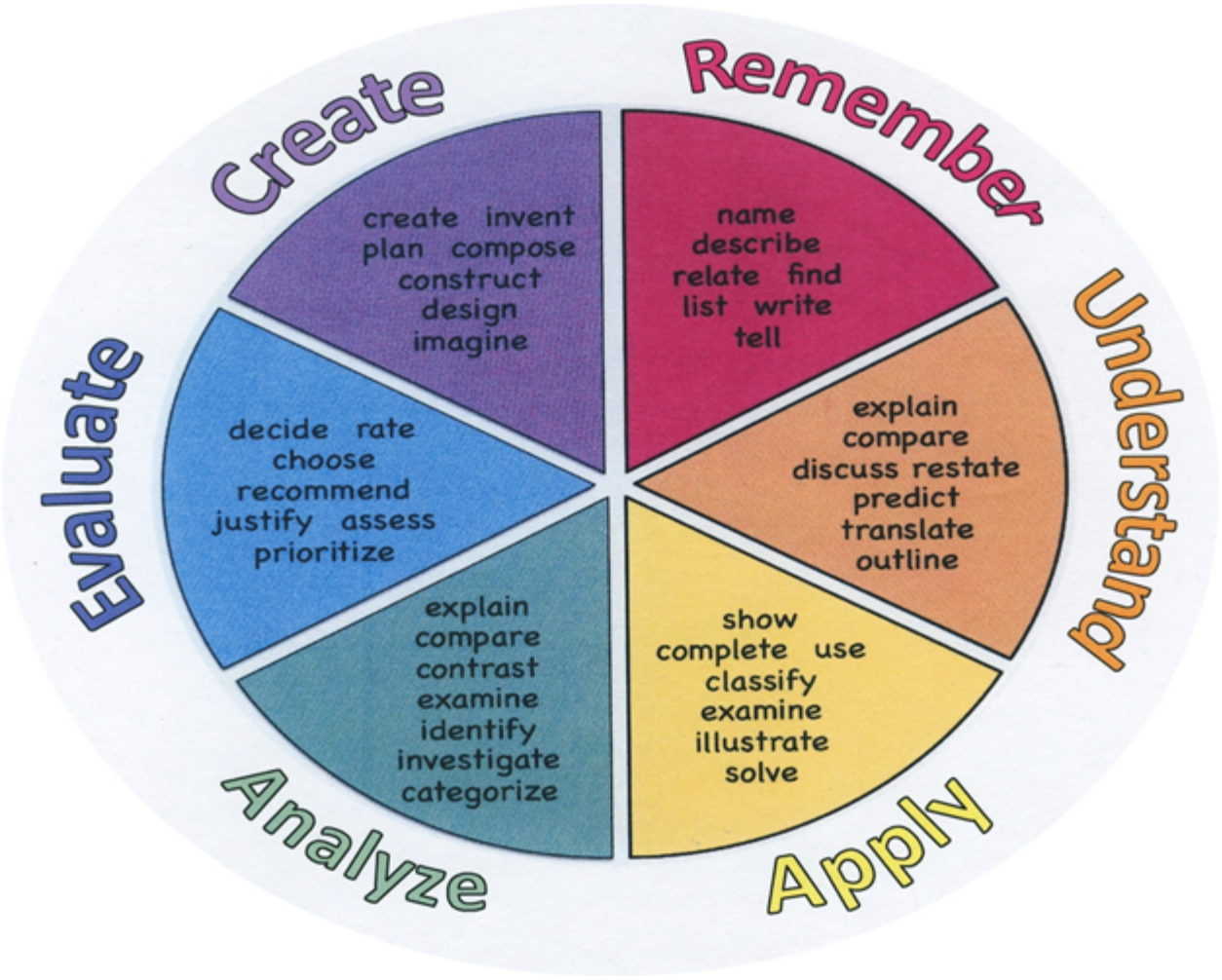
LA.WHST.6-8.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
LA.WHST.6-8.9	Draw evidence from informational texts to support analysis, reflection, and research.
MA.6.EE.C.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.
LA.SL.8.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
LA.SL.8.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
LA.SL.8.5	Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
MA.6.SP.B.5	Summarize numerical data sets in relation to their context, such as by:

Learning Objectives

Upon completion of this unit, students will demonstrate the ability to:

- identify how the interactions of biotic and abiotic factors affect the natural balance of an ecosystem
- infer how human activity has an effect on the natural balance of ecosystems
- model and analyze how different organisms get matter and energy in various ways
- explain that matter and energy are neither created nor destroyed among organisms and nonliving things
- model how matter and energy are transferred between organisms
- analyze diagrams to determine that matter such as water and carbon cycles through an ecosystem
- identify that energy drives these cycles
- organize the levels of the living elements of an ecosystem
- model the dependence of living things on other organisms and abiotic factors for survival
- construct an explanation of how limited resources can result in competition and reduce the growth of populations and how abundant resources can negatively or positively affect populations
- explore complex feeding relationships between organisms, investigate how individual organisms work with and against each other, and analyze patterns in data to predict how these interactions result in population changes
- explain how biodiversity affects the health of an ecosystem
- determine changes in one part of an ecosystem can result in changes to another part
- examine ways in which humans impact ecosystems
- explore how changes in biodiversity can influence the availability of natural resources and cause changes to ecosystems

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

Suggested Activites and Best Practices for this unit include:

- Decomposition Laboratory HMH Module C Unit 1 Lab Activity. Exploring the decomposition rates of vegetation under different conditions
- Hands on Activity Elodea photosynthesis lab. Exploring the release of oxygen by Elodea plants when exposed to sunlight.
- Teacher demonstration Yeast and sugar water lab. Exploring the release of carbon dioxide by east as they digest the sugar.
- Work in heterogeneous groups to research and create an anchor chart depicting energy cycling through a food web
- Defined Stem project Solar Energy - Photovoltaic Cells. Research solar energy as an alternative to fossil fuels and

Assessment Evidence - Checking for Understanding (CFU)

- HMH worksheet/reports and diagrams on each Lab - "Decomposition", "Elodea leaf", and "Yeast and Sugar" laboratory activities (Alternate)
- HMH Unit Tests for Module C imported to Google Classroom (Summative)
- Energy web anchor chart (Alternate)
- Defined Stem - Solar Energy Project (Alternate)
- Oncourse Assessment Tools (Formative)
- Unit Quiz (Summative)
- "Do Now/Exit Ticket" Activity (Formative)

- Admit Tickets
- Anticipation Guide
- Common Benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- DBQ's
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Learning Center Activities
- Multimedia Reports
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar

- Study Guide
- Surveys
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit review/Test prep
- Unit tests
- Web-Based Assessments
- Written Reports

Primary Resources & Materials

- Defined Stem
- Google Classroom
- HMH workbook and Website Module D
- HMH Laboratory Kits Module D
- Brainpop
- NewsELA
- YouTube
- School Tube
- Khan Academy

Ancillary Resources

Supplementary Resources incude:

- Legends of Learning games and quizzes - "Conversion of Food into Matter and Energy", "Chages in Eccosystems over Time" "Bodiversity and Heath of Ecosystems"
- Bill Nye - 'Biodivesity" video and guided notes.
- Untamed Science - Ecology the Study of Interactions video
- Amoeba Sisters tutorials - Evolution Youtube Playlist Amoeba sister Ecology Playlist (6 titles)
- Teacher prepared Powerpoint presentation on Ecosystems and the Environment

Technology Infusion

Legends of Learning qmaes and Quizzes https://app.legendsoflearning.com/teachers/v1/games/learning-objective/WyJsZWFybmluZ19vYmplY3RpdmVzIiwzODhd

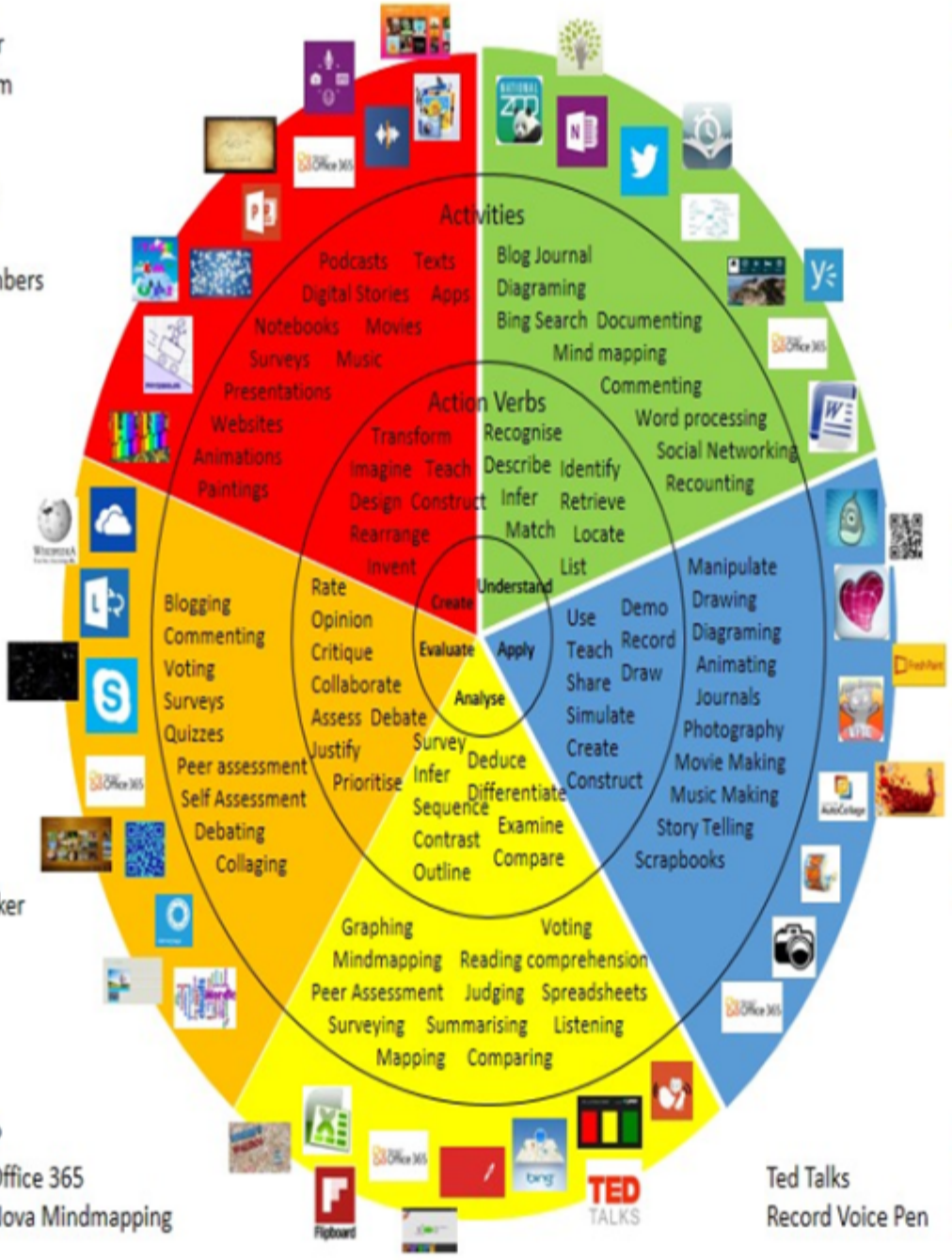
BrainPOP Ecology Playlist https://www.brainpop.com/search/?keyword=ecology+

- Smart board/Interactive T.V.
- Student Chromebooks
- Google Classroom
- Document Camera
- Pod-casts video streams
- Discovery Education video streams
- You Tube video streams Bill Nye Ecology and Biodiversity videos
- Scholastic Science Times Magazine online
- Quizlet
- Laptops
- Khan Academy
- Power Point presentation Ecosystems, Ecology , and the Environment.
- MS Word

Win 8.1 Apps/Tools Pedagogy Wheel

Podcasts
Photostory 3
Kid Story Builder
Music Maker Jam
Paint A Story
Office 365
MS PowerPoint
Stack 'Em Up
NqSquared Numbers
Physamajig
Xylophone 8

Wikipedia
Skydrive
Lync
SkyMap
Skype
Office 365
Puzzle Touch
Easy QR
Memorylage
Life Moments
Word Cloud Maker



Where's Waldo?
MS Excel Office 365
Flipboard Nova Mindmapping

Ted Talks
Record Voice Pen

Originally taken from http://www.coetail.com/vzimmer/files/2013/02/iPadagogy-Wheel.001.jpg
And adapted for Windows 8.1 devices by Charlotte Beckhurst @CharBeckhurst

Alignment to 21st Century Skills & Technology

CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
CRP.K-12.CRP5.1	Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.
CRP.K-12.CRP6.1	Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.
CRP.K-12.CRP7.1	Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use reliable research process to search for new information. They evaluate the validity of sources when considering the use and adoption of external information or practices in their workplace situation.
CAEP.9.2.8.B.1	Research careers within the 16 Career Clusters ® and determine attributes of career success.
CAEP.9.2.8.B.3	Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.
CAEP.9.2.8.B.6	Demonstrate understanding of the necessary preparation and legal requirements to enter the workforce.
CAEP.9.2.8.B.7	Evaluate the impact of online activities and social media on employer decisions.
TECH.8.1.8.A.CS1	Understand and use technology systems.
TECH.8.1.8.A.CS2	Select and use applications effectively and productively.

TECH.8.1.8.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
TECH.8.1.8.B.CS2	Create original works as a means of personal or group expression.
TECH.8.1.8.E.CS1	Plan strategies to guide inquiry.
TECH.8.1.8.E.CS2	Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
TECH.8.2.8.A.1	Research a product that was designed for a specific demand and identify how the product has changed to meet new demands (i.e., telephone for communication - smart phone for mobility needs).
TECH.8.2.8.A.5	Describe how resources such as material, energy, information, time, tools, people, and capital contribute to a technological product or system.
TECH.8.2.8.D.1	Design and create a product that addresses a real world problem using a design process under specific constraints.
TECH.8.2.8.D.3	Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution.

21st Century Skills/Interdisciplinary Themes

Upon completion of this section, please remove all remaining descriptions, notes, outlines, examples and/or illustrations that are not needed or used.

Please list only the **21st Century/Interdisciplinary Themes** that will be incorporated into this unit.

- 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

Upon completion of this section, please remove all remaining descriptions, notes, outlines, examples and/or illustrations that are not needed or used.

Please list only the **21st Century Skills** that will be incorporated into this unit.

- Civic Literacy
- Environmental Literacy

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

Differentiation

Multisensory presentation to reinforce Core and Cross Cutting Concepts

- Video streams on food/energy webs, Biodiversity, and Ecosystems - BrainPOP, Legends of Learning,
- Teacher prepared Powerpoint Presentation and guided notes about Biodivesity, Ecosystems, and Ecology

Authentic Activity

- Hands on Labs modeling decomposition, photosynthesis and respiration, utilizing diagrams and written reports for assessment

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)

The following **Special Education Learning** adaptations will be employed in the unit:

- a student working with an assigned partner on hands on labs modeling decomposition, photosynthesis and respiration,
- highlighted student ebook Module C
- secure attention before giving instruction/direction
- Study guide and modified test content for Module C unit Tests
- multi-sensory presentation of content - Barinpoip, Ecology playlist, Legends of Learning Ecology Playlist, Bill Nye Bodivesity video

- 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
- 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 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)

English Language Learning adaptations that will be employed in the unit are:

- using videos, illustrations, pictures, and drawings to explain BrainPOP Ecology Playlist, Legends of Learning Ecology Playlist
- using a model to analyze the intricate workings of the food web
- partnering skilled ELLs with less skilled learners for translation
- providing study guides
- reducing the number of answer choices on a Module C multiple choice tests

- teaching key aspects of a topic. Eliminate nonessential information
- 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 workpresented 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

At Risk

At Risk intervention strategies to be employed during this unit include:

- using videos, illustrations, pictures, and drawings to explain or clarify
- allowing students to correct errors on Module C Unit tests
- using authentic assessments with real life problem solving Decomposition, Elodea, and Yeast laboratory activities
- highlighted Module C ebook displayed on interactive screen

- 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 workpresented 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

Talented and Gifted Learning (T&G)

Talented and Gifted adaptations that will be employed in the unit include:

- Utilize project based learning for greater depth of knowledge - Solar Battery Defined STEM Project
- advanced problem solving - HMH take it further page 185 Backyard Biodiversity https://www.hmhco.com/content/science/sciencedimensions/na/gr6-8/ese_modc_9780544882263_/book_pages/#cards--6l1_0650_ese_tif_engineeritmaintainingbiodiversity_3/ b=
- Flexible skill grouping within a class or across grade level for rigor - Energy Web Anchor Chart

- 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

Sample Lesson

Unit Name: Ecology and the Environment

NJSLS: See Link

Interdisciplinary Connection: See Link

Statement of Objective: SWDAT analyze how different organisms get matter and energy in various ways also observe and explore how soil conditions affect the rate of plant decomposition.

Anticipatory Set/Do Now: Hot Seat

Anticipatory Set YouTube video on decomposition. https://www.youtube.com/watch?v=uB61rfeeAsM

Learning Activity:
1. Do Now/Anticipatory set.
2. SW prepare three different plastic bags with the materials necessary to complete Hands-On Lab on page 14-15. SW record their observations under Day 1 on their data chart.

3. TW display Unit 1 Lesson 1 from workbook pages 6-18 in module C SW highlight important ideas and complete all questions

Student Assessment/CFU's: Hot Seat, Students' workbook.

Materials: HMH workbook, Laptops, Interactive TV, Ziploc Bags, Sand, Potting Soil, Mixture of fruits and vegetables. Graduated cylinders distilled water.

21st Century Themes and Skills: See Link

Differentiation: See Link

Integration of Technology: Google Classroom, HMH curriculum, YouTube video