# Unit 3 Biological Evolution, Unity and Diversity (Life Science)

Content Area: **Science**
Course(s): **Sample Course, Science 8**
Time Period:
Length: **35 Days & Grade 8**
Status: **Published**

## Title Section

## Department of Curriculum and Instruction

**Belleville Public Schools**

**Curriculum Guide**

Life Science, Grade 8

Unit 3 - Biological Evolution, Unity and Diversity

**Belleville Board of Education**

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## Unit Overview

- The theme of this unit is that all life on earth has evolved from common ancestry accounting for both biodiversity and similarities.
- The ideological direction of this unit is that evolution is the process that utilizes adaptation and extinction to facilitates that the DNA which will enhance the species' ability to survive environmental pressures.
- Topics to be explored include:
    - Fossil Record
    - Common Ancestry and Diversity
    - Evolution
    - Theories of evolution
    - Natural Selection
    - Adaptation
    - Mutation and variation
    - Speciation and Extinction
    - Biodiversity and Humans
    - Genetic Engineering

- Students should expect to learn
    - Recognize patterns in the Fossil Record
    - Theories of Evolution
    - Darwin's theory of Natural Selection
    - Model the fossilization process to recognize how fossils are formed
    - Explain the processes of Speciation and extinction
    - Environmental pressures
    - Adaptations

- Genetic change and traits
- Mutations and allele frequency
- Artificial Selection
- Genetic engineering
- Analyze and compare embryonic development of various species
- Harmful, beneficial, and neutral mutations
- Mathematical representations that explain the probability of the increase and decrease of specific traits in a population

## Enduring Understanding

**Enduring Understanding**

- We are unique individuals as a direct result of DNA from prior generations.
- Organisms reproduce, develop, have predictable life cycles, and pass on some traits to their offspring.
- Sometimes differences between organisms of the same kind give advantages in surviving and reproducing in different environments.
- All living things interact with and cause changes in their environment.
- Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring.
- Living organisms have a variety of observable features that enable them to obtain food and reproduce.
- All living things have many of the same traits.
- All living things interact with and cause changes in their environment.
- We are unique individuals as a direct result of DNA from prior generations.
- Organisms reproduce, develop, have predictable life cycles, and pass on some traits to their offspring.
- Sometimes differences between organisms of the same kind give advantages in surviving and reproducing in different environments.

## Essential Questions

**Essential Questions**

- How do organisms change over time in response to changes in the environment?
- How does natural and artificial selection lead to population increases and decreases over time
- How do organisms change as they go through their life cycles?
- In what ways are organisms of the same kind different from each other?
- How do differences aid in survival?
- How are traits and organisms passed from one generation to another?

## Exit Skills

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

- Define species and evolution
- Compare and contrast theories of evolution
- Describe how organisms can change over time in response to environmental factors.
- Describe how mutation causes variation in a population, and how species vary based on factors such as climate, changing landforms, interspecies interaction, and genetic mutation.
- Explain difference between physical and behavioral adaptations in a variety of organisms.
- Explain how reproductive success coupled with advantageous traits over many generations contributes to natural selection.
- Describe how fossil evidence and comparative anatomy and embryology provide evidence for evolution.
- Explain why the extinction of a species may occur when the environment changes
- Relate the theory of natural selection to species adaption
- Distinguish between relative and radiometric dating in fossil layers
- Describe primates
- Debate the value of Genetic engineering
- Construct explanations based on evidence to support fundamental understandings of natural selection and evolution
- Use ideas of genetic variation in a population to make sense of organisms surviving and reproducing, hence passing on the traits of the species.
- Use fossil records and anatomical similarities of the relationships among organisms and species to support their understanding

## New Jersey Student Learning Standards (NJSLS-S)

NextGen Science Standards

| | |
|---|---|
| 6-8.MS-ETS1-2.ETS1.B | Developing Possible Solutions |
| 6-8.MS-ETS1-3.ETS1.C | Optimizing the Design Solution |
| 6-8.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. |
| 6-8.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. |
| 6-8.MS-LS4-5 | Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms. |
| 6-8.MS-LS4-3 | Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy. |
| 6-8.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. |
| 6-8.MS-LS3-1.LS3.A | Inheritance of Traits |
| 6-8.MS-LS3-1.LS3.B | Variation of Traits |
| 6-8.MS-LS4-1.LS4.A.1 | 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. |
| 6-8.MS-LS4-4.LS4.B | Natural Selection |
| 6-8.MS-LS4-6.LS4.C | Adaptation |
| SCI.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. |
| SCI.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. |

## Interdisciplinary Connections

| | |
|---|---|
| MA.6.RP.A.1 | Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. |
| MA.6.RP.A.2 | Understand the concept of a unit rate $a/b$ associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. |
| 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.6-8.9 | Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. |
| LA.WHST.6-8.2 | Write informative/explanatory texts, including the narration of historical events, scientific |

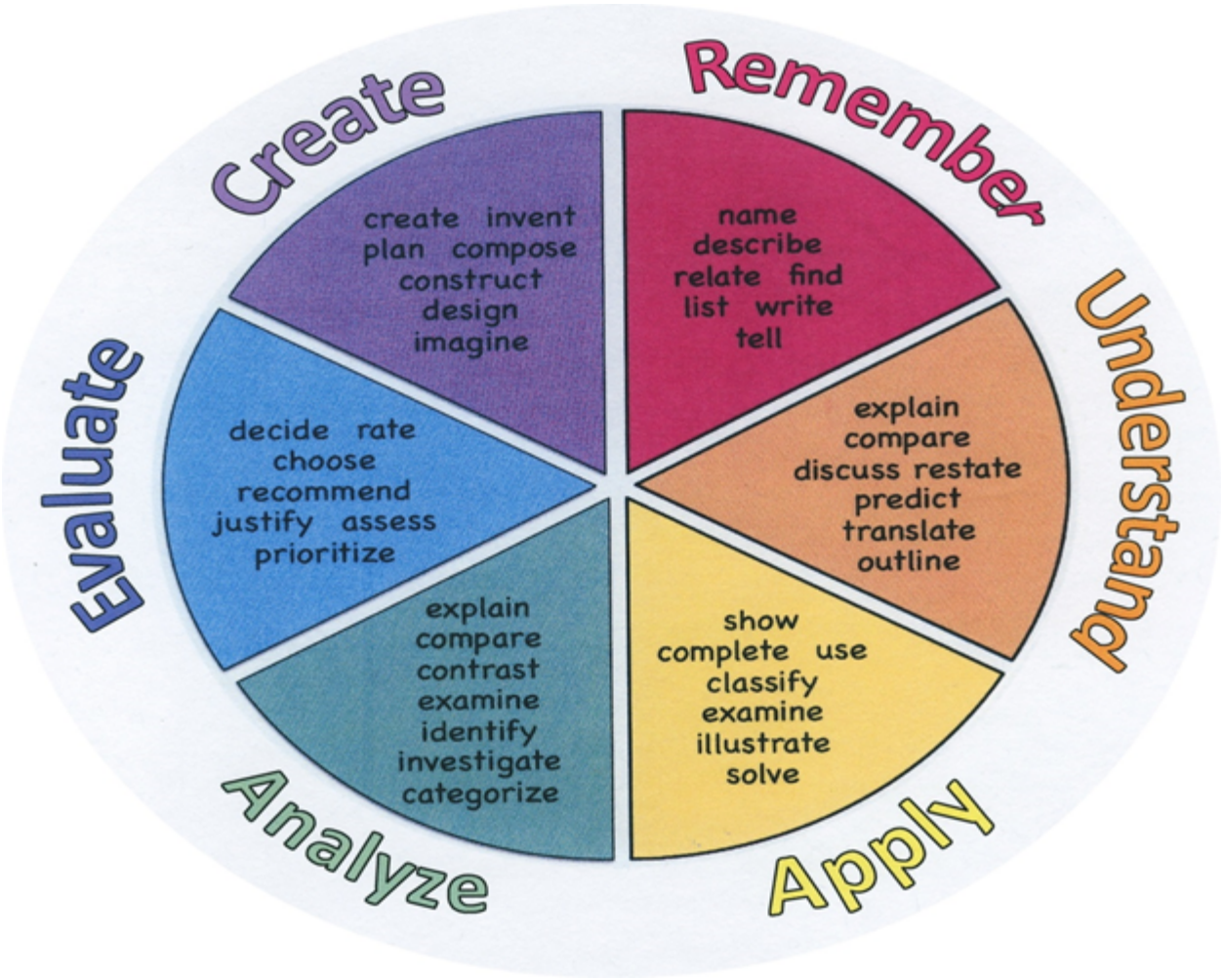
| | |
|---|---|
| | procedures/experiments, or technical processes. |
| LA.WHST.6-8.8 | Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. |
| LA.WHST.6-8.9 | Draw evidence from informational texts to support analysis, reflection, and research. |
| MA.6.EE.B.6 | Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. |
| 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. |

## Learning Objectives

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

- explore the conditions for fossilization and construct their own fossil.
- analyze data related to the changes in the number and diversity of organism over time.
- examine how fossils give evidence of the history of life on Earth
- differentiate patterns in the fossil record that indicate extinction events
- analyze patterns or similarities in the anatomy and embryo logical development across species
- explore the methods scientists use to analyze and interpret fossil records to document the existence, diversity, extinction, and change of many life forms over time
- analyze models to explain how the information in genes is used to code for specific proteins that determine an individual's traits
- explain that some variation in traits can provide a survival advantage
- critique the relationship between adaptations and natural selection
- utilize mathematical representations to predict speciation and extinction
- analyze evidence to differentiate natural and artificial selection
- critique the technologies and ethics associated with gene therapies and genetic engineering.

| 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 activities and best practices are:

- Peppered Moth Simulator- http://peppermoths.weebly.com
- Model Fossil Formation - HMH Module D Lesson Hand's on Activity
- SW work in groups to create an Evolution timeline
- Investigate Relative and Absolute Age - HMH Quick Lab https://www.hmhco.com/content/science/sciencedimensions/na/gr6-8/ete_modd_9780544882515_/teacher_resources/standalonehandsonlab/MODD_SAHOL_U1_L1_2.pdf?custom_correlation_id=ecbe6718-981f-11e9-93fd-7b0479e45b79
- Create a 10 question quiz based on their understanding of the BBC Documentary - "What Darwin Didn't Know"

## Assessment Evidence - Checking for Understanding (CFU)

- Summative Module D Chapter Tests given in Google Classroom (Summative)
- Periodic Vocabulary Quizzes (Summative)
- Lab activities and Accompanying worksheets (Modeling Fossils, Investigating Relative and Absolute Age) (Summative)
- Pepper Moth Simulator graph. (Formative)
- Defined Stem Paleontologist project (Alternate)
- Why It Matters charts (KWL) (Formative)
- Graphic Organizer - Evolution Timeline (Formative)
- BrainPop quizzes on videos covering Fossils, Evolution, Natural Selection. Extinction (Summative)
- Newsela Article/Quiz covering Evolution, Paleontology, and Natural Extinction (Summative)
- HMH Workbook Highlights & Questions (Formative)
- Notebook Entries & Diagrams (Alternate)
- Student created quiz - What Darwin Didn't know (Summative)
- Oncourse Assessment Tools (Formative)
- Unit Test/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

Textbook and Dimensions primary 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 include:

- Legends of Learning - "The Fossil Record", "Embryological Evidnce of Common Ancestry". and "Natural Selecttion"
- Bill Nye - 'Evolution" and "Fossils" Videos
- Untamed Science - Bringing Back the Mammoth from Extinction, Hawaiian Honey Creepers - Evolution in Hawaii
- Amoeba Sisters tutorials - Evolution Playlist
- Teacher prepared Powerpoint presentation on Fossilization, Evolution, and Natural Selection

## Technology Infusion

Legends of Learning - "The Fossil Record", "Embryological Evidnce of Common Ancestry". and "Natural Selecttion"
Peppered Moth Simulator- http://peppermoths.weebly.com

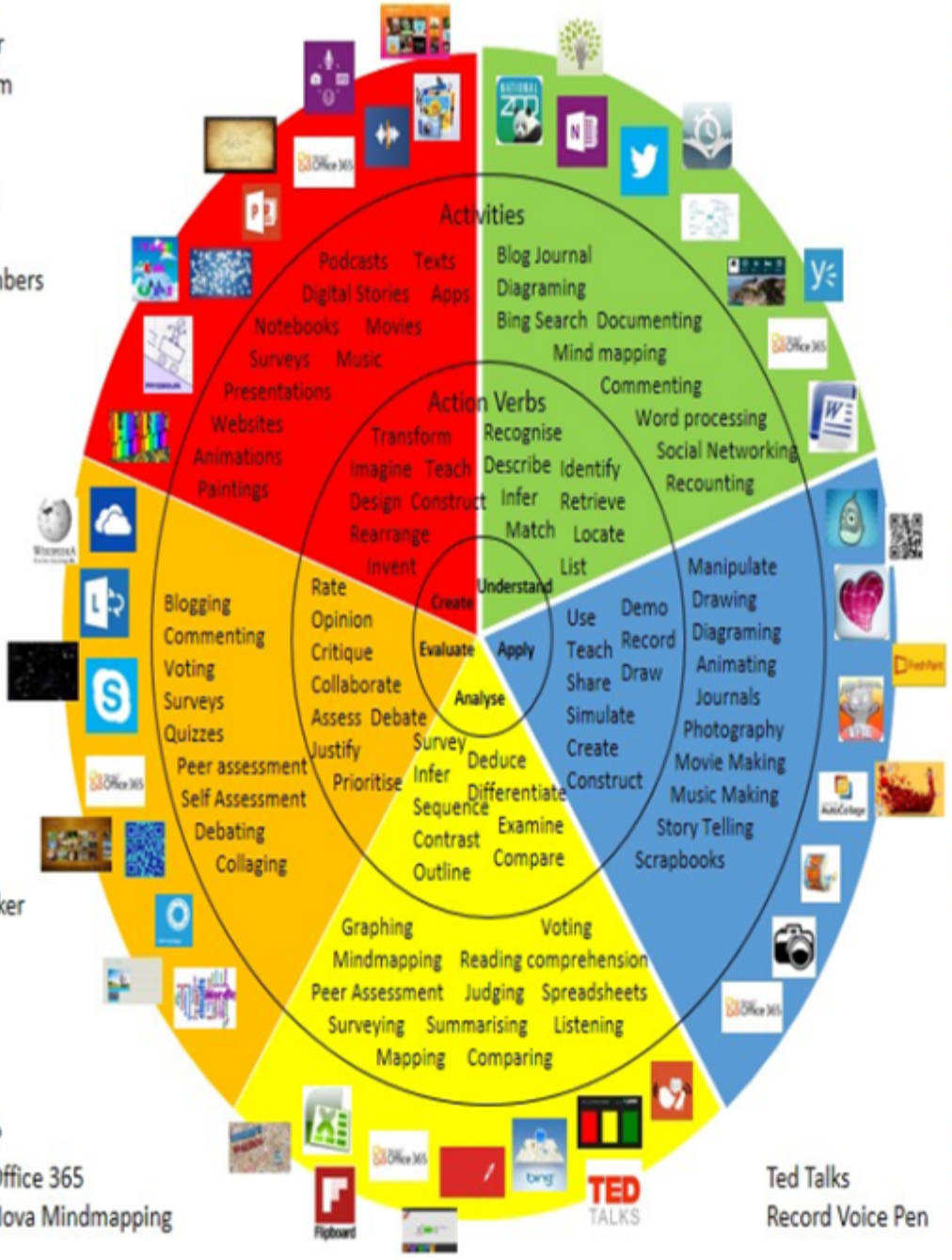
Utilizing:

- Smart board/Interactive T.V.
- Student Chromebooks
- Google Classroom
- Document Camera
- Pod-casts video streams
- Discovery Education video streams
- You Tube video streams
- Brain-pop video streams
- Legands of Learning
- Quizlet
- Laptops
- Khan Academy
- Power Point presentation Fossils, Evolution and Natural Selection
- 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.CRP2 | Apply appropriate academic and technical skills. |
| CRP.K-12.CRP4 | Communicate clearly and effectively and with reason. |
| CRP.K-12.CRP7 | Employ valid and reliable research strategies. |
| CRP.K-12.CRP8 | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP.K-12.CRP11 | Use technology to enhance productivity. |
| 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. |
| TECH.8.1.8.A | Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations. |
| TECH.8.1.8.A.2 | Create a document (e.g., newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability. |
| 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.1 | Synthesize and publish information about a local or global issue or event (ex. telecollaborative project, blog, school web). |
| TECH.8.1.8.B.CS2 | Create original works as a means of personal or group expression. |
| TECH.8.1.8.C.CS1 | Interact, collaborate, and publish with peers, experts, or others by employing a variety of digital environments and media. |
| TECH.8.1.8.C.CS2 | Communicate information and ideas to multiple audiences using a variety of media and formats. |
| TECH.8.1.8.D.4 | Assess the credibility and accuracy of digital content. |
| 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.8.1.8.E.CS3 | Evaluate and select information sources and digital tools based on the appropriateness for specific tasks. |

## 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

The following activities will be implemented to accommodate different learning styles and abilities:

- Model Fossil Formation Module D page 4 - reinforce concept using tactile and visual learning
- Homogeneous paired partners to coduct the Peppered Moth Simulator to allow teacher to focus on struggling students
- Utilizing Closed Caption on Bill Nye, BriainPOP, and youtube streams.
- Display and highlight text usiing Module D ebook on Smart TV whenever reading in class

**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:

- students will work with an assigned partners on evolution timeline, and peppered moth simulator game and graphing activity
- Google Classroom, Quizlet, and Legends of Learning computer based quizzes. (teacher prepared)
- Heterogeneous grouping for Defined Stem Paleontology project
- Utilize video game format to engage students Legends of Learning - "The Fossil Record", "Embryological Evidnce of Common Ancestry". and "Natural Selecttion"

- 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)

The following **English Language Learning** adaptations will be employed in the unit:

- Students will work with an assigned partners on evolution timeline, and peppered moth simulator game and graphing activity
- HMH Hands on Activity Modeling Fossil formation to reinforce concept understanding
- Heterogeneous grouping for Defined Stem Paleontology project
- Utilize video game format to engage students Legends of Learning - "The Fossil Record", "Embryological Evidnce of Common Ancestry". and "Natural Selecttion"
- modified test content Module D Unit tests
- pairing partners to assist in translation whenever possible

- 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

Intervention Strategies for this Unit include:

- Use of Whale Evolutionary Flash cards. Students will physically arrange these cards to show the progression, specifically in bone structure.
- choice of products for Defined Stem Paleontology Project

- Analogous, Homologous, and Vestigal graphic organizer to explain anotomical evidence of evolution

- 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 - Paleontologist Project, Defined STEM
- Advanced problem solving - HMH Module D page 100 "Continue Your Exploration, Evolution of Drug Resistant Bacteria"
- Flexible skill grouping within a class or across grade level for rigor - Evolution Timeline

- 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:** Diversity of Living Things

**NJSLS:** See link

**Interdisciplinary Connection:** See link

**Statement of Objective:** SWDAT to chose a sight to dig for fossil while playing the role of a paleontologist.

**Do Now:** Review *Big Idea and Essential Questions*, homework, with your science partner. Prepare for class discussion.

**Anticipatory Set:** WC discussion to review Homework

**Learning Activity:**
1. Do Now/Anticipatory Set
2. Review G.R.A.S.P. section of defined stem project. TW display on Interactive screen.
3. SW work with science partner to view Product, Rubrics, and Research Question to decide which product to work on.
4. Exit Ticket - Each Pair will turn in Exit Ticket with Product choice listed on it.

**21st Century Themes and Skills:** See link

**Materials:** Laptops, Interactive TV, Exit Ticket

**Differentiation:** See link

**Integration of Technology:** Defined Stem