Unit 6: Fossils

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Title Section

Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Unit 6: Fossils

Grade 3

Belleville Board of Education

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Unit Overview

Unit 6: Fossils

In this unit, students will:

- explore fossils
- discover what fossils can tell us about animals that lived long ago

Vocabulary

- aquatic
- extinct
- fossil
- terrestrial

Enduring Understanding

Enduring Understandings:

- Fossils are the remains/traces of an organism that lived long ago
- Fossils tell us about the past

- Fossils can tell us about what organisms looked like and the environments in which organisms lived
- There are various different types of fossils based on how they were formed
- Fossils can tell us about ancient ecosystems and organism interactions
- Scientists learn many things from comparing fossils from extinct organisms to fossils of organisms alive today
- Fossils can provide evidence that environments changed over time

Essential Questions

- What is a fossil?
- What do fossils tell us about the past?
- How can fossils be used to determine what an environment was like?
- What are examples of how fossils provide evidence of change over time?
- What are different types of fossils and how are they formed?

Exit Skills

By the end of Grade 3, Science Unit 6, the student should be able to:

- Identify different types of fossils and explain what they can tell you about organims from the past
- Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago
- Use fossils as evidence to explain what an organism's environment was like

New Jersey Student Learning Standards (NJSLS-S)

3-LS4-1	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.
3-LS4-1.3.1	Observable phenomena exist from very short to very long time periods.
3-LS4-1.4.1	Analyze and interpret data to make sense of phenomena using logical reasoning.
3-LS4-1.LS4.A.1	Some kinds of plants and animals that once lived on Earth are no longer found anywhere.
3-LS4-1.LS4.A.2	Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.

Interdisciplinary Connections

Connections to Math:

MP.2 Reason abstractly and quantitatively

MP.4 Model with mathermatics

MP.5 Use appropriate tools strategically

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

Connections to English Language Arts

RI.3.1

RI 3,2

W.3.7

W.3.8

SL.3.4

MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
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.
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.
LA.W.3.7	Conduct short research projects that build knowledge about a topic.
LA.W.3.8	Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
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.

Learning Objectives

Students will demonstrate ability to:

- Analyze and interpret data from fossils to provide evidence of organisms and the environments in which they lived long ago
- Identify some types of fossils
- Explain that fossils represent plants and animals from the past
- Analyze fossils to determine the types of organisms represented by thsoe fossils
- Use the analysis to determine the environment in which organisms lived

Suggested Activities & Best Practices

HMH Science Dimensions, Unit 6 - Lesson 1:

- **Engage:** "Can You Solve It?" lesson
- **Explore/Explain:** "What Are Fossils?, "Clues From Fossils" 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 6 - Lesson 2:

- **Engage:** "Can You Solve It?" lesson
- **Explore/Explain:** "Wet or Dry?", "Yesterday and Today", "How'd That Get There?" essons and hands-on activity (Exploration 1, 2, & 3)
- **Elaborate:** "Discover More" extension activity
- **Evaluate:** "Lesson Check" and "Lesson Roundup" assessments (formative/summative)

HMH Science Dimensions, Unit 6 - Unit Project (A Window to the Oast):

- **Research and Plan (Look for Patterns)**
- **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
- Outline
- 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 Dimensons 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

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

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 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

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 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

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: