Sept. Gr. 3: Unit 1: Environments and Living Things

Content Area: **Science**
Course(s):
Time Period: **September**
Length: **6-8 Weeks**
Status: **Published**

Unit Overview

In this unit, students learn about different environments and the living things in that environment. Students learn about the past in the environments, and how things change over time.

Enduring Understandings

Differences in environments across the planet affect the plant and animal life that lives there.

Animals and plants adapt to thier environment in different ways.

Studying fossils helps us to discover how environments and things living there have adapted over time.

Essential Questions

What is the relationship between an environment and the living things that exist there?

How do environments and the plants and animals that live there change over time?

Instructional Strategies & Learning Activities

TEACHERS: These units are linked directly to TCI Science Alive! NGSS teaching materials.

Where Do Organisms Live?

Students learn about four different environments: hot desert, coral reef, temperate forest, and tropical rainforest. With a partner, they match organisms to the environments they would best survive in.

Reading Further: Island Animals

- 2

How Does Living in a Group Help Some Animals Survive?

Students model how living in a school of fish can protect a fish from predators. They gather evidence to construct an explanation about the importance of living in groups for an animal's survival.

Reading Further: Bats That Eat Blood

- 3

How Do Environments Change?

Students examine pictures that show changes to environments. Then, in pairs, they create an act-it-out about one environmental change, and the rest of the class guesses which change they are demonstrating.

Reading Further: Hero of the Environment

- 4

What Happens to Organisms in Changing Environments?

Students analyze data so that they are able to recommend a design for a new animal crossing in a state park.

Reading Further: Road Safety for Wildlife

- 5

How Do People Learn About Extinct Organisms?

Students act as paleontologists and uncover fossils of plants and animals that lived on Earth millions of years ago. They categorize the fossils according to their findings.

Reading Further: Everybody Loves T. rex

- 6

What Do Fossils Show About Environments of Long Ago?

Students look at pictures of dinosaur teeth. They use these pictures to predict what the dinosaur ate and present their findings to the class. Then they think about other features that can be used to learn about the environment a dinosaur lived in.

Reading Further: Dino Droppings

Integration of Career Exploration, Life Literacies, Key Skills

An individual's passions, aptitude and skills can affect his/her employment and earning potential.

9.4.5.CI.1	Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3,7.1.NM.IPERS.6).
9.2.5.CAP.1	Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
9.4.5.CI.2	Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).
	The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.
9.4.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).
	Intellectual property rights exist to protect the original works of individuals. It is allowable to use other people's ideas in one's own work provided that proper credit is given to the original source.
	Culture and geography can shape an individual's experiences and perspectives.
9.4.5.GCA.1	Analyze how culture shapes individual and community perspectives and points of view (e.g., 1.1.5.C2a, RL.5.9, 6.1.5.HistoryCC.8).
9.4.5.IML.6	Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions (e.g., RI.5.7, 6.1.5.HistoryCC.7, 7.1.NM. IPRET.5).
CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
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.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

Technology and Design Integration

Students will interact with the SmartBoards, Chromebooks, and Document Camera.

	The technology developed for the human designed world can have unintended consequences for the environment. Technology must be continually developed and made more efficient to reduce the need for non-renewable resources.
8.2.5.ETW.3	Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.
8.2.5.ETW.4	Explain the impact that resources, such as energy and materials used to develop technology, have on the environment.
8.2.5.ETW.5	Identify the impact of a specific technology on the environment and determine what can be done to increase positive effects and to reduce any negative effects, such as climate change.

TECH.8.1.5	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.5.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.5.A.2	Format a document using a word processing application to enhance text and include graphics, symbols and/or pictures.
TECH.8.1.5.A.4	Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.
TECH.8.1.5.A.CS2	Select and use applications effectively and productively.
TECH.8.1.5.D.1	Understand the need for and use of copyrights.
TECH.8.1.5.D.CS1	Advocate and practice safe, legal, and responsible use of information and technology.
TECH.8.1.5.E.CS2	Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
TECH.8.1.5.E.CS3	Evaluate and select information sources and digital tools based on the appropriateness for specific tasks.
TECH.8.2.5.B.CS4	The influence of technology on history.
TECH.8.2.5.C.4	Collaborate and brainstorm with peers to solve a problem evaluating all solutions to provide the best results with supporting sketches or models.

Interdisciplinary Connections

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.RI.3.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.
LA.RI.3.5	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
LA.RI.3.6	Distinguish their own point of view from that of the author of a text.
LA.RI.3.7	Use information gained from text features (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
LA.RI.3.8	Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence) to support specific points the author makes in a text.
LA.RI.3.9	Compare, contrast and reflect on (e.g., practical knowledge, historical/cultural context, and background knowledge) the most important points and key details presented in two texts on the same topic.
LA.RI.3.10	By the end of the year, read and comprehend literary nonfiction at grade level text-complexity or above, with scaffolding as needed.
LA.RF.3.3	Know and apply grade-level phonics and word analysis skills in decoding and encoding

	words.
LA.RF.3.4	Read with sufficient accuracy and fluency to support comprehension.
LA.W.3.1	Write opinion pieces on topics or texts, supporting a point of view with reasons.
LA.W.3.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
LA.W.3.4	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
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.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
LA.L.3.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
LA.L.3.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
LA.L.3.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.

Differentiation

- Understand that gifted students, just like all students, come to school to learn and be challenged.
- Pre-assess your students. Find out their areas of strength as well as those areas you may need to address before students move on.
- Consider grouping gifted students together for at least part of the school day.
- Plan for differentiation. Consider pre-assessments, extension activities, and compacting the curriculum.
- Use phrases like "You've shown you don't need more practice" or "You need more practice" instead of words like "qualify" or "eligible" when referring to extension work.
- Encourage high-ability students to take on challenges. Because they're often used to getting good grades, gifted students may be risk averse.

- **Definitions of Differentiation Components**:

    - Content – the specific information that is to be taught in the lesson/unit/course of instruction.
    - Process – how the student will acquire the content information.
    - Product – how the student will demonstrate understanding of the content.
    - Learning Environment – the environment where learning is taking place including physical location and/or student grouping

Differentiation occurring in this unit:

Utilize differentiation suggestions in the TCI Science Alive! program for enrichment and support.

Modifications & Accommodations

Refer to QSAC EXCEL SMALL SPED ACCOMMOCATIONS spreadsheet in this discipline.

Modifications and Accommodations used in this unit:

Utilize 504 and IEP accommodations where required.

Benchmark Assessments

Benchmark Assessments are given periodically (e.g., at the end of every quarter or as frequently as once per month) throughout a school year to establish baseline achievement data and measure progress toward a standard or set of academic standards and goals.

Schoolwide Benchmark assessments:

Aimsweb benchmarks 3X a year

Linkit Benchmarks 3X a year

DRA

Additional Benchmarks used in this unit:

Nonfiction DRA

Nonfiction Aimsweb

Formative Assessments

- Assessment allows both instructor and student to monitor progress towards achieving learning objectives, and can be approached in a variety of ways. **Formative assessment** refers to tools that identify misconceptions, struggles, and learning gaps along the way and assess how to close those gaps. It includes effective tools for helping to shape learning, and can even bolster students' abilities to take ownership of their learning when they understand that the goal is to improve learning, not apply final marks (Trumbull and Lash, 2013). It can include students assessing themselves, peers, or even the instructor, through writing, quizzes, conversation, and more. In short, formative assessment occurs throughout a class or course, and seeks to improve student achievement of learning objectives through approaches that can support specific student needs (Theal and Franklin, 2010, p. 151).

  Formative Assessments used in this unit:

- TCI worksheets, quizzes
- Questioning and Discussion
- Teacher observation
- Labs and Hands on activities
- Whiteboard Response
- Think-Pair Share
- Workbook pages
- Writing/Performance rubrics included in lesson

Summative Assessments

Summative assessments evaluate student learning, knowledge, proficiency, or success at the conclusion of an instructional period, like a unit, course, or program. Summative assessments are almost always formally graded and often heavily weighted (though they do not need to be). Summative assessment can be used to great effect in conjunction and alignment with formative assessment, and instructors can consider a variety of ways to combine these approaches.

Summative assessments for this unit:

Unit assessments in the TCI program

Performance Task

Instructional Materials

Materials for labs indicated in TCI program

Standards

Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.

Engaging in Argument from Evidence

Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to

	critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).
	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.
LS2.C	Ecosystem Dynamics, Functioning, and Resilience
LS4.D	Biodiversity and Humans
	Populations live in a variety of habitats and change in those habitats affects the organisms living there.
	Systems and System Models
	A system can be described in terms of its components and their interactions.