Unit 1: Spaceship Earth	Pacing: 4 weeks
Description	Earth is a large Spaceship traveling through space, with limited resources for life. Students will learn that the requirements for life are finite and must be used wisely. In agriculture we must acknowledge the intersection between an organism's natural life and a captive one and ethics must be used to raise animals. Students will experience what it takes to provide a habitat for animals and plants.
Essential Questions	1. What are the components of planet Earth that sustain life? 2. Why do we find animals and plants specific to certain areas? 3. How do the adaptations of organisms affect their captive care? 4. Why is sustainability so important when it comes to raising plants and animals?
Learning Objectives	Students will: ☐ evaluate survival items to determine their effectiveness to sustain life. ☐ use animal data to determine the best environment for them to be raised. ☐ identify adaptations of animals and develop a habitat proposal and care instructions that best suit the animal/plant best possible care ☐ propose and develop an argument why the animal's care and habitat is sustainable and appropriate for a particular place or region.
Application of Learning Objectives	• Demonstrating an understanding of the Earth's features that sustain life. • Explaining how organisms require specific climates and habitats. • Developing an understanding of care instructions that show responsibility and ethics towards captive animals. • Demonstrating and explaining knowledge of sustainability in raising plants and animals.
Vocabulary	Unit Word Bank
CT ASCT Standards	CT-AS.07. Performance Element: Design and utilize comfortable and safe animal housing and equipment CT-AS.06.01. Performance Indicator: Demonstrate safe animal handling and management techniques.
Resources	Enviro/Ag materials Unit text, reading, and worksheet resources Spaceship Earth EdPuzzle
Assessments	Project Proposal Rubric Exit ticket Student Peer Grading Rubric

Unit 2: Diversity and Sustainability	Pacing: 4-5 weeks
Description	Students will learn to connect with Ledyard forests and communities by examining the diversity of species. They will learn to identify plants, mammals, mushrooms, trees, and insects that are connected to the local food web. We engage students with a relatable topic where humans have affected the ecosystem's diversity. They are tasked to show their research on local species and the changes that happen within the ecosystem and our role in it.
Essential Questions	1. What are key features of stable ecosystems? 2. What role does diversity play in stable ecosystems? 3. How do people determine problems with diversity in an ecosystem? 4. How can sustainable practices be used by humans to make restorative changes in an ecosystem?
Learning Objectives	Students will: ☐ identify parts and key elements to an ecosystem and develop questions that when answered lead to potential solutions to the issue. ☐ gather data in order to form a pattern in food webs which displays the relationship between diversity and stability in a food web. ☐ use adaptations of species to determine their identity, and survey populations ☐ develop a plan to safely manage invasive species in their local ecosystem.
Application of Learning Objectives	• Developing an understanding of open-ended questions to further investigate the issue • Researching the food web using media articles and forest surveys • Identifying species in a food webs and collecting data on food sources using dichotomous • Developing an understanding of restoring sustainability in an ecosystem.
Vocabulary	Unit Word Bank
CT ASCT Standards	CT-NRS.01. Performance Element: Explain interrelationships between natural resources and humans necessary to conduct management activities in natural environments. CT-NRS.01.01. Performance Indicator: Apply knowledge of natural resource components to the management of natural resource systems. CT-NRS.01.01.01.a. Identify the ecosystem structure in terms of food web, biodiversity, and carrying capacity.*CT Assessment Standard NRE 4. CT-NRS.01.01.01.b. Describe the interdependence of organisms within an ecosystem

	CT-NRS.01.01.01.c. Conduct field studies of an ecosystem and record and document observations of species interactions.
Resources and Technology Enhancements	Chrome books with Internet connection Slide Projector Access to forest behind LMS Enviro/Ag materials Unit 2- text, reading and worksheet resources
Assessments	1 foot Garden Project Build A Flower explain Almonds and Bees case study Pollinator Booklet Project

Unit 3: Waste Not Want Not	Pacing: 6 weeks
Description	Arable soil is a scarce resource, and modern large scale agriculture is unsustainable. Consumerism is unsustainable. By learning about the importance of the soil ecosystem, students will practice sustainable methods that restore and regenerate soil and reduce waste.
Essential Questions	1. What is the role of soil for life? 2. Why should I preserve and promote the soil's own ecosystem? 3. Why can some waste biodegrade and others cannot? 4. What can I do to create a soil substitute that will both reduce waste and increase the growth of plants? 5. How can a system be put into place that enables farms to grow food and promote soil diversity?
Learning Objectives	Students will: ☐ develop a list of pros and cons as to what soil may be doing or not doing in its role of sustaining life given a problem with living organisms. ☐ form a hypothesis as to the role of organisms in soil. ☐ collaborate, plan, model, and build a composter. ☐ demonstrate knowledge of the soil food web, web to problem solve for farmers with certain soil issues.
Application of Learning Objectives	• Identifying what soil does to provide resources to all life on Earth. • Demonstrating an understanding of a soil comparison with high biodiversity compared to low. • Researching the importance of creating and using a composting system which uses the soil food web, the appropriate green and brown materials, along with air and water. • Developing an understanding of promoting sustainable solutions for farmers involving soil health.
Vocabulary	Unit Word Bank
CT ASCT Standards	CT-NRS.06.01. Performance Indicator: Apply soil science principles to environmental service systems.a. Explain the process of soil formation through weathering. CT-NRS.06.0102.a. Describe the biodiversity found in soil and the contribution of biodiversity to the physical and chemical characteristics of soil. CT-NRS.06.01.03.b. Identify the physical qualities of the soil that determine its use for environmental service systems.

	CT-NRS.06.01.03.c. Conduct tests of soil to determine its use for environmental service systems. CT-PS.02.03.03.a. Collect soil samples for testing and interpret test results. CT-PS.02.03.03.b. Determine the nutrient content of soil using appropriate laboratory procedures. PS 7. CT-PS.02.03.04.b. Describe the role of N, P, and K in regards to vegetative growth, root development, seed production, and plant stress.
Resources and Technology Enhancements	Enviro/Ag materials Unit text, reading, and worksheet resources Chromebook
Assessments	Design a Soil Contest Soil Sustainability Exit ticket Compost bin design

Unit 4: Finding Your Way	Pacing: 3 weeks
Description	In this unit, students will develop map and compass skills. They will use these skills in a variety of ways, planning transportation routes, and making maps. Even though the technology exists to help people navigate, contour maps are still needed in the industry. When identifying water movement, city planning, animal populations, or planning a hike, topographical maps are used.
Essential Questions	1. How are maps and compasses used to gather data and used in navigation? 2. How can I make sense of the data found on a contour map? 3. How do I make a map using the contour rules? 4. What are methods used to create a real map?
Learning Objectives	Students will: ☐ use their compass knowledge to find bearings towards landmarks. ☐ develop a plan for a safe route of travel using a contour map and compass bearings skills. ☐ design, draw and label a contour map containing all the learned features of a contour map, key and compass rose. ☐ demonstrate their knowledge of map making techniques by creating a collaborative map of the school's forest.
Application of Learning Objectives	• Identifying parts to a compass. • Developing an understanding of how to use contour line spacing and scale to decide a route of travel on a contour map. • Demonstrating an understanding of the rules of contour lines. • Demonstrating the use of pace, compass skills, and basemap.
Vocabulary	Unit Word Bank
CT ASCT Standards	CT-NRS.02.02.03.a. Identify the following components of a topographical map: contour lines, wetlands, buildings, compass, and scale. *CT Assessment Standard NRE 11. CT-NRS.02.02.01.a. Demonstrate how to use maps to identify directions and features, calculate actual distance and determine the elevations of points.
Resources and Technology Enhancements	Enviro/Ag materials Unit text, reading, and worksheet resources
Assessments	Landform Scavenger Hunt Alien Landscape Map Project Treasure Map Project

Unit 5: Responsibility	Pacing: all semester
Description	Students collaborate, communicate, and record their data on several self guided classroom projects. They record their observations on projects such as animal care, plant propagation, school recycling, composting, and small scale agriculture. The projects take time to complete and tools are available to students to measure climate, light, and moisture levels. Students are assessed by process, initiative, and skill development.
Essential Questions	1. How is the scientific process used in agriculture or in the workplace? 2. How will I know if I am making progress towards the project goal? 3. How can I reflect on the responsibility I took?
Learning Objectives	Students will: ☐ research, then select a project to create a task list or calendar needed to follow to maintain the project's goals. ☐ demonstrate their knowledge of using a log sheet to record appropriate environmental data and task completion daily to meet their project goals. ☐ identify and present what they "did well" and "did not do so well" with a reflection data sheet, or data collection video.
Application of Learning Objectives	• Developing an understanding of the responsibilities you will have will determine the goals you need to set for a given project. • Demonstrating knowledge of how to use measurement tools for goal setting projects. • Analyzing collected data to evaluate and adjust project procedures.
Vocabulary	Unit Word Bank
CT ASCT Standards	CT-AS.07. Performance Element: Design and utilize comfortable and safe animal housing and equipment. CT-NRS.06.01.02.b. Relate the activities of microorganisms in soil to environmental service systems. CT-NRS.07.02.06.b. Describe recycling methods and identify materials that can be recycled. CT-PS.02.01.01.c. Design, implement, and evaluate a plan to maintain optimal conditions for plant growth. CT-PS.03.01.02.c. Evaluate and adjust germination conditions, monitor for common disorders during germination
Resources and Technology Enhancements	Unit text, reading, and worksheet resources Enviro/Ag materials
Assessments	Student Work Log In class project Log Sheet

	Responsibility Project rubric , students grade their projects

Approved by Instructional Council on May 31, 2023