

# FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT



## Garden & Forest

<b>Board Approval Date:</b> January 19, 2023	<b>Course Length:</b> 1 Semester
<b>Grading:</b> A-F	<b>Credits:</b> N/A
<b>Proposed Grade Level(s):</b> 6, 7, 8	<b>Subject Area:</b> Elective <b>Elective Area (if applicable):</b> Science
<b>Prerequisite(s):</b> None	<b>Corequisite(s):</b> None
<b>CTE Sector/Pathway:</b> N/A	
<b>Intent to Pursue ‘A-G’ College Prep Status:</b> No	
<b>A-G Course Identifier:</b>	
<b>Graduation Requirement:</b> No	
<b>Course Intent:</b> <b>Program (if applicable):</b>	
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### COURSE DESCRIPTION:

This course is designed to be a “hands-on” introduction to two topics: plant biology and forest ecosystems. Both topics act as extensions and enrichment of NGSS science standards for 6th-8th grade. While learning plant biology, students will utilize the campus garden, which consists of 16 planters and a central sitting area that can accommodate 32 students. The course will be project-based, with a variety of lessons centered around students growing plants in the garden. As not all times of the year are conducive for students doing activities outdoors, the second major topic of the course is forest ecosystems. Students will do research-based projects to learn about forest ecosystems around the world.

The two topics of garden and forest will be intermixed throughout the semester. This will allow for fluidity in the projects that will be completed outside (most of the garden activities). Generally speaking, the “garden” projects will be completed later in the first semester (as the temperature becomes cool enough in the first semester, and dry enough in the second semester). The “forest” projects will be completed in a typically classroom setting during the times of year that aren’t conducive to being outdoors in the garden.

**DETAILED UNITS OF INSTRUCTION:**

Unit Number/Title	Unit Essential Questions	Examples of Formative Assessments	Examples of Summative Assessment
<p><b>1. An Introduction to Gardening</b></p>	<p>In this unit, students will begin by learning the foundations of gardening and of the components of the school gardens. Students will prepare garden beds and each group will plant their own area of garden.</p> <p>What are the essential factors for healthy plants?</p>	<p>*Informal oral question/responses *Project milestones *Experiment conclusions *Exit tickets</p>	<p>*Quiz assessment of “factors for healthy plants”</p>
<p><b>2. The Anatomy and Life Cycle of Plants</b></p>	<p>Students will conduct observations and begin to conduct both short term labs, and longer term investigations on the growth process of plants.</p> <p>What is the natural life cycle of plants of both annual and perennial plants?</p> <p>What is the internal and external structure of plants?</p>	<p>*Informal oral question/responses *Project milestones *Experiment conclusions *Exit tickets</p>	<p>*Rubric-based project assessment of investigations (experiment set-up, etc.)</p>
<p><b>3. Pollinators and Plant Communities</b></p>	<p>In this unit students will learn about the different roles and functions of pollinators in a garden. Students will compare and</p>	<p>*Informal oral question/responses *Project milestones *Experiment conclusions *Exit tickets</p>	<p>8 Rubric-based project assessment of ongoing investigations (results/ conclusions of experiments, etc.)</p>

	<p>contrast how successful gardens are organized to the natural organization found in grassland, chaparral, and forest ecosystems.</p> <p>What are the roles of pollinators in plant communities? What are the roles of pollinators in natural ecosystems?</p>		
<b>4. Healthy Gardens</b>	<p>Students will conduct various experiments to investigate how different biotic and abiotic factors affect the health of their gardens.</p> <p>How do different fertilizers, watering cycles, plant spacing, etc. affect plant health and growth?</p>	<ul style="list-style-type: none"> <li>*Informal oral question/responses</li> <li>*Project milestones.</li> <li>*Journaling</li> <li>*Exit tickets</li> </ul>	<p>*Rubric-based project assessment of ongoing investigations (results/conclusions of experiments, etc.)</p>
<b>5. The Ecology of Forests</b>	<p>Students begin the study of forest ecosystems.</p> <p>What are the biotic and abiotic factors of forest ecosystems? What types of consumers and producers do we expect in forest ecosystems? What are the different vertical layers in a forest ecosystem?</p>	<ul style="list-style-type: none"> <li>*Informal oral question/responses</li> <li>*Project milestones</li> <li>*Exit tickets</li> </ul>	<p>*Quiz based assessment of “forest ecosystem components”</p>
<b>6. Forests of the World</b>	<p>Students will engage in a project to research different forests throughout the world. Each student group will create a presentation on a different forest ecosystem. Students will present their findings to the</p>	<ul style="list-style-type: none"> <li>*Informal oral question/responses</li> <li>*Project milestones</li> <li>*Exit tickets</li> </ul>	<p>*Rubric-based project assessment of group projects (e.g. poster project and presentation)</p>

	<p>class at the end of the project.</p> <p>What are the common biotic and abiotic factors of forest ecosystems? How does energy flow through forest ecosystems?</p>		
<b>7. California Forests</b>	<p>Students will engage in research projects focusing on California’s forests. Each student group will investigate the historical and current management of the forest, and what ecosystem services that forest provides to local communities and the state.</p> <p>Who are the different stakeholders for California forests? What ecological services do California’s forests provide?</p>	<p>*Informal oral question/responses *Project milestones *Exit tickets</p>	<p>*Rubric-based project assessment of research report (stakeholders and ecological services)</p>
<b>8. Fire and California Forests</b>	<p>Students will research the historical and current history of fires on California’s forests. Students will engage in research and group discussion on different fire mitigation strategies and how they impact different stakeholders in California.</p> <p>What are the different fire mitigation strategies? What are the short-term and long-term costs and benefits of each strategy?</p>	<p>*Informal oral question/responses *Project milestones *Exit tickets</p>	<p>*Rubric-based assessment of Socratic Seminar (discussing fire-mitigation strategies)</p>

## **ESSENTIAL STANDARDS:**

MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms

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.

MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations

MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

## **RELEVANT STANDARDS AND FRAMEWORKS, CONTENT/PROGRAM SPECIFIC STANDARDS:**

### **Link to Common Core Standards (if applicable):**

Educational standards describe what students should know and be able to do in each subject in each grade. In California, the State Board of Education decides on the standards for all students, from kindergarten through high school.

### **Link to Framework (if applicable):**

Curriculum frameworks provide guidance for implementing the content standards adopted by the State Board of Education (SBE). Frameworks are developed by the Instructional Quality Commission, formerly known as the Curriculum Development and Supplemental Materials Commission, which also reviews and recommends textbooks and other instructional materials to be adopted by the SBE.

### **Link to Subject Area Content Standards (if applicable):**

Content standards were designed to encourage the highest achievement of every student, by defining the knowledge, concepts, and skills that students should acquire at each grade level.

[https://www.nextgenscience.org/search-standards?keys=&tid\\_4%5B%5D=All&tid\\_1%5B%5D=All&tid\\_2%5B%5D=All&tid%5B%5D=106](https://www.nextgenscience.org/search-standards?keys=&tid_4%5B%5D=All&tid_1%5B%5D=All&tid_2%5B%5D=All&tid%5B%5D=106)

### **Link to Program Content Area Standards (if applicable):**

Program Content Area Standards apply to programs such as International Baccalaureate, Advanced Placement, Career and Technical Education, etc.

## **TEXTBOOKS AND RESOURCE MATERIALS:**

### **Textbooks**

<b>Board Approved</b>	<b>Pilot Completion Date (If applicable)</b>	<b>Textbook Title</b>	<b>Author(s)</b>	<b>Publisher</b>	<b>Edition</b>	<b>Date</b>
		<i>N/A</i>				

### **Other Resource Materials**

“Explore Your Environment: K-8 Activity Guide” Project Learning Tree Sustainable Forestry Initiative Inc. 2121 K Street, NW, Suite 750 Washington, DC 20037 <https://www.plt.org/> ; “Talk About Forests” The California Forest Foundation 500 Capitol Mall, Suite 2360 Sacramento CA, 95814 <https://www.calforestfoundation.org/learn>; “The School Garden Curriculum: An Integrated K-8 Guide for Discovering Science, Ecology, and Whole-Systems Thinking” Kai Rai Christopher New Society Publisher, 2019 <https://www.theschoolgardencurriculum.com/>; “School Garden Curriculum” Slow Food USA 1000 Dean St. #222 Brooklyn, NY 11238 <https://slowfoodusa.org/school-gardens/curriculum/>

### **Supplemental Materials**

Board approved supplemental materials (Including but not limited to: Film Clips, Digital Resources, Supplemental texts, DVDs, Programs (Pebble Creek, DBQ, etc.):