

ELA Superheroes: Snapshots of Environmental Literacy in California Classrooms



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Grade 4 Snapshot: *Caring for One Piece of Land - Making Arguments for Plant Inclusion in a Habitat Restoration Project*

Mr. Gaiera’s place-based, integrated Science and ELA restoration unit, created in partnership with a land trust and a native plant nursery, asks students to research native flora, use database evidence and expert advice to justify and present their choices for the most beneficial and appropriate native plants for the project, write a grant, and then complete the restoration project. It is a multi-year project that invites students to see not only the progress of restoration over time but also the ways in which specific weather and climate conditions impact the progress of their work. The project optimizes relevance, value, and authenticity ([UDL Checkpoint 7.2](#)) by providing students with real-world problems to solve, authentic learning outcomes, and real audiences to which to communicate. It also directly addresses the EPs&Cs by exploring how humans can alter natural systems - and by actively making decisions about natural systems ([EPs&Cs 3 and 5](#)).

The first phase of the project focuses on meaning-making and building content knowledge through multiple means. Mr. Gaiera pre-teaches complex terminology and restoration-related vocabulary ([UDL Checkpoint 2.1](#)). Then, students begin learning about the restoration site, which is a riparian zone on a local land trust, through guest speakers and site visits. Mr. Gaiera teaches students how to utilize the CalFlora database to research appropriate and beneficial local plants and restoration tools for the site. As a class, students develop a list of plant and tree species from the CalFlora database and bring the list to experts at their local native plant nursery for cross-referencing and to determine availability. Students then work in cooperative learning groups ([UDL Checkpoint 8.3](#)) to create arguments (claims, evidence, and reasoning) for the inclusion of one particular species to plant on the site. Students acquire new, domain-specific vocabulary while applying math skills to real-life situations throughout this process.

To practice effective expression, each group works together to create digital presentations to share with the class while they argue for their species choices, raising engagement through debate. Mr. Gaiera then asks the class to weigh in on contested questions, such as whether a big-leaf maple or a redwood should be planted in a particular location. As a class and with the help of local restoration specialists, students decide what to plant and where to plant it, using graphing skills and spatial reasoning. Mr. Gaiera provides his class with an authentic audience to address as they write about their newly acquired content knowledge, specifically their regional community foundation. Students write a small grant application to fund the purchase of their chosen species and restoration tools, and they are awarded the grant, which raises engagement and a sense of ownership for the class. While writing, they

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consider tone, audience, and purpose and select the most relevant information to convince their readers.

The final phase of the unit involves the class performing the actual restoration project on the land trust property. Students participate in everything from site-preparation to digging holes and pulling field grass ([UDL Checkpoint 7.2](#)). Students also learn that weather and climate can impact the success of a restoration project, as their first attempt at mitigating field grass in the restoration area was washed away and needed to be replanted. As the project continues, students will conduct more research about restoring native flora and eventually map the site.

Mr. Gaiera reflects that this “unit” really isn’t just a unit, but a long-term, longitudinal project in which his students - and former students - will continue to be invested. Former students will come back to the land in 20 years and see how things have progressed, and the entire community will benefit by learning about which plants are the best to plant in that particular riparian zone habitat. Furthermore, Mr. Gaiera also reflects that visiting not only the restoration site but also the native plant nursery gives students a reason and motivation to want to engage in the research and English-Language Arts standards.

Framework Highlights	Lesson Details
<p>EP&C 5A: Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors There is a spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.</p>	<p>The activities in this unit engage students with research and decision making about specific plant and tree species that would be most appropriate and successful in their riparian restoration zone. Students conduct research on websites and speak with local experts prior to making those decisions.</p>
<p>UDL Checkpoint 8.3: Foster collaboration and community</p>	<p>The activities in this unit bring together students, land trust staff, restoration specialists, and community. Students work as a community to make decisions about species choices, and as a community, write a grant to the local area foundation. The actual restoration project also brings the community together to perform the physical tasks associated with planting and monitoring the restoration site.</p>

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CA CSS for ELA/Literacy:

- **CCSS.ELA-LITERACY.W.4.1** Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
- **CCSS.ELA-LITERACY.W.4.1.B** Provide reasons that are supported by facts and details.
- **CCSS.ELA-LITERACY.SL.4.4** Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Related CA Next Generation Science Standards:

- **4-ESS2-1.** Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
- **4-ESS3-2.** Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

Environmental Principles & Concepts:

- **EP&C 3A.** Natural systems proceed through cycles and processes that are required for their functioning.
- **EP&C 5B.** The process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

Additional Information

Article: ["Students, volunteers, pros collaborate on Jacoby Creek restoration"](#) (Gaiera, 2022)