

## *STEAMER LANDING RESTORATION PROJECT*

<b>Teachers:</b> Jessica Dennen, Shiloh Winders		<b>Duration:</b> 3 Months
<b>Subject/Course:</b> Integrated Science, Math 1, 2	<b>School:</b> Carpe Diem and Sonoma Mountain High School	<b>Grade Level:</b> 10-12
<b>Collaborating Organizations:</b> Friends of the Petaluma River		
<b>Standards Met</b> (NGSS, CCSS, or otherwise)	ESS3.C Human Impacts on Earth systems. The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources. HS-ESS3.C	
<b>Project Summary</b> (include student role, issue, problem or challenge, action taken, and purpose/beneficiary)	Students will become stewards of their local watershed by learning about and caring for the centrally located Petaluma River park at Steamer Landing. Specifically, they will work through a variety of activities that contribute to the successful establishment of native plants through planting and tending to 30 new individual trees and shrubs. In doing so, students will contribute to ongoing community efforts to celebrate and conserve the Petaluma River. Students will see the interconnectedness of the biotic and abiotic factors at the park and the implications of their plants within this ecosystem as time progresses. We hope that these efforts over time will transform the park into a thriving riparian community that all can benefit from.	
<b>Essential Question</b> Question students will explore throughout the course of the unit.	In what ways does land stewardship at Steamer Landing contribute to the health of the Petaluma Watershed?	
<b>Key Learning Objectives and Assessments</b> Concrete objectives for student skill building and comprehension and how	Learning Objective	Assessment
	Students will be able to identify the biotic and abiotic factors that contribute to the current conditions of Steamer Landing Park. Such as tide, nutrients, wind, grasses, shrubs, insects and	Students will participate a sit spot activity making observations on these factors. They will have guiding questions to help them and to take notes on. Then they will participate in a group discussion with Lee Farese. To assess their learning students will add text over an image of the park

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these will be measured.	Birds. They will also be able to identify evidence of surrounding city life and infrastructure and make inferences on their effects on the park.				identifying their learning using key terms.		
	Students will be able to identify requirements for and perform task associated with successfully planting and caring for native trees and shrubs.				Students will document the planting using their ipads to record images and notes and then will reflect upon the process creating a photo journal of the experience.		
	Students will deepen their knowledge of and better understand their place within the Petaluma watershed.				Students will create a “Personal Petaluma Watershed Map” by adding places of significance to them on top of a digital map of the watershed or on paper if they prefer. They will make connections to what the closest waterways are to those places and how those spots have impact on the watershed. Examples would be homes, elementary schools, or hang out spots.		
<b>Entry Event</b>	In-Class Visit		DYRHC Field Trip Happening this week	Yes	Other		If other, describe in timeline how you will meet entry activity requirements
<b>Making Products Public</b> Include how student work will be shared with community members and/or organizations, who students will engage with during/at end of	Students will create a short documentary video on the restoration project process and outcome. That will be shared on the FOTPR website and facebook page in addition to showing it at the spring showcase. It will also be shown at our schools Portfolio Night and entered in a PG&E sustainability project contest.						

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project, and which product(s) will be presented at the Watershed Classroom Student Showcase.	

## PROJECT TIMELINE

Please list all activities which are part of the unit in the order they will be implemented. Timeline must include pre and post-assessments, other in-class assessments, an entry activity, at least three outdoor fieldwork activities, a plan for participation in the student showcase, and any other supporting activities and classwork.

Activity	Type of Activity (Field Work, In-Class, Presentation, Assessment)	Description	Resources Needed	Exact or Approximate Dates
<i>Name the activity</i>	<p><b>Field Work:</b> Any hands-on outdoor lesson or field trips</p> <p><b>In-Class:</b> Any in-class activity or project</p> <p><b>Presentation:</b> Any activity during which students share their work with each other or an outside audience</p> <p><b>Assessment:</b> Any written or oral exams given to assess student understanding and knowledge</p>	<i>A thorough outline of the activity.</i>	<i>All reading materials, activity materials and equipment, transportation, third party help, or other resources needed to make the activity possible.</i>	<i>Please be as specific as possible so that we best know when to reach out with resources and tools to aid in implementation. Exact dates will be emitted from publicly shared version to protect student privacy.</i>
Watershed Classroom Pre-Assessment	Assessment	A multiple choice assessment analyzing student understanding of the watershed's geography, biology and history, as well as understanding of and attitudes towards human impacts on the Petaluma River.	Watershed Classroom Pre-Assessment on <a href="http://watershedclassroom.org/preassessments">watershedclassroom.org/preassessments</a>	
<b>ENTRY EVENT</b> 1 <sup>st</sup> Steamer Landing Visit	Field Work	Students will be introduced to the place, discuss it as an ecosystem and begin the planting process by soil preparation while visiting DYRHS	Parent drivers, snacks, Lee Farese, teachers, iPads, sit spot questions, pencils,	End of October

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Watershed Web Quest	In-class	A digital exploration of the Petaluma Watershed using the interactive watershed map.	Chromebooks, Watershed Classroom Interactive Map, web quest handout	Early November
Native Plant Identification Signs	In Class	Art Students will paint individual signs on reclaimed redwood to identify last year's plants. Signs will be placed at various locations at Steamer Landing.	Reclaimed redwood fencing, House paint, Brushes, etc	Ongoing throughout semester
Native Plant Research	In Class	Students will research the tree or shrub they have chosen to plant and care for using the California Native Plant Society as a resource.	CNPS website, iPads,	Early November
2 <sup>st</sup> Steamer Landing Visit	Field Work	Students will plant, mulch and water their plants as well as notice how the changing season has changed the landscape at Steamer Landing.	Parent volunteers, snacks, Lee Farese, teachers, iPads, shovels, etc	Mid December
Personal Petaluma Watershed Map	In Class	Students will create a map of their personal places within the watershed. In doing so they will place and label a variety of layers and locations on top of a premade basic watershed map. <i>What sort of personal places?</i>	Colored pencils, markers, large paper, Watershed Classroom Interactive Map	December

Restoration Project Documentary	All	Students will create a short documentary video on the restoration project process and outcome. Along the way we will collect pictures and video of our work to include in the video.	Ipads	Ongoing finished by end of Semester
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**Other Notes:**

Needs to include Spring portion of project on timeline. [See email to Katelynn](#)

We are so excited to work with you and your students again this year! We love this project. It really does a wonderful job of connecting students to our watershed. Thank you for being in the program. [Thank you for the opportunity!](#)