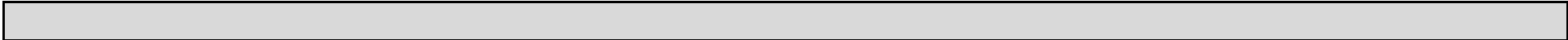


TURNING THE TIDE ON PLASTIC

Teachers: Glenn Berry		Duration:
Subject/Course: Science and Language Arts		School: McKinley School
Grade Level: 6		
Collaborating Organizations: Friends of the Petaluma River		
<p>Standards Met (NGSS, CCSS, or otherwise) Please include full text of standards.</p>	<p>NGSS MS- ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. ELA/Literacy CCSS.ELA-LITERACY.RST.6-8.1 - Cite specific textual evidence to support analysis of science and technical texts. WHST.6-8.7 - Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (MS-ESS3-3) WHST.6-8.8 - Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-ESS3-3) WHST.6-8.9 - Draw evidence from informational texts to support analysis reflection, and research. (MS-ESS3-3) Math 6.RP.A.1 - Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. (MS-ESS3-3)</p>	
<p>Project Summary (include student role, issue, problem or challenge, action taken, and purpose/beneficiary)</p>	<p>Students will learn about pollutants in our watershed with a focus on plastics: what happens to them, what impact they have on the environment, and what can be done about it. Students will use the issue of plastics in our oceans to build knowledge, analyze arguments, verify claims, and develop plans for how to minimize our community's contribution to this problem. Students will conduct a clean up of Lynch creek and will sort and analyze the trash that is recovered. Other data sources will be investigated (data from Friends of the River past clean ups, state water board information, and home trash inventories). Students will analyze the types of trash that are found in the clean ups and at home, and then reflect how they may be contributing to it. Students will develop and implement a plan to reduce the plastic waste produced by the school and at home. Students will produce a final project that includes but is not limited to: educating the local community, petitioning for change, and drawing attention to the problem.</p>	

Essential Question Question students will explore throughout the course of the unit.	What happens to plastic items once they are discarded? How much plastic is in our local watershed? How does it impact our environment, locally and globally? What can we do about it?					
Key Learning Objectives and Assessments Concrete objectives for student skill building and comprehension and how these will be measured.	Learning Objective			Assessment		
	Students will build an understanding of how much plastic is produced and what happens to it when it enters our watershed			Students will measure the amount of plastics in the trash at home, at school, and at local creeks. Students will display this data, and extrapolations that can be reasonably made from it, on posters.		
	Students will learn about what happens to plastics during production, use, and disposal.			Students will produce one or more of the following to educate the wider community about the life cycle of plastic: digital presentations, short films, public service announcement, and informational posters.		
	Students will build skills that will enable them to design solutions to the problem of plastic waste supported by multiple sources of evidence and consistent with scientific ideas and theories.			Students will design solutions to minimize their school and their community's contribution to plastic pollution.		
Orientation	In-Class Visit		Field Trip to River Heritage Center		Other	If other, describe in timeline how you will meet entry activity requirements
Making Products Public Include how student work will be shared with community members and/or organizations, who students will engage with during/at end of project, and which product(s) will be presented at the Watershed Classroom Student Showcase.	Students will educate the school community on the problem presented by plastic waste and design solutions to minimize their contribution of plastics to the environment. Students will choose how to share this information with the broader community (such as petitioning the school board to reduce the use of single use plastics, making YouTube Videos, presenting to the McKinley School community, writing letters to the editor, and any other public forum students might be interested in pursuing. Students will decide how they want to present their project at the 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>	Field Work: Any hands-on outdoor lesson or field trips In-Class: Any in-class activity or project Presentation: Any activity during which students share their work with each other or an outside audience Assessment: Any written or oral exams given to assess student understanding and knowledge	<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>
Orientation	In class visit			
Hook In class Read Press Democrat article about	Hook In class Read Press Democrat article about	Hook In class Read Press Democrat article about	Hook In class Read Press Democrat article about	
At home and at school plastic inventory	In class Assessment	Students will determine their family's use of plastic shopping bags, and compare it with that of their classmates. They will use this information to estimate an annual total for their class, school, and residents of Petaluma. Students will then explore	Marine Debris Fact Sheets from NOAA's Marine Debris Program (http://marinedebris.noaa.gov). International Coastal Cleanup report from Ocean Conservancy Student Worksheet	

		ways to reduce their use of plastic shopping bags.	(www.oceanconservancy.org)	
Clean Up	Field Work	Students will participate in a clean up of Lynch Creek. They will sort and weigh the gathered trash.	Clean Up Supplies	
Only Rain Down the Drain -	Field Work	Students will participate in the field trip "Down the Drain" hosted by Friends of the Petaluma River		
Student solution design and final project	In class Presentations Assessment	Students will produce a final project that includes but is not limited to: educating the local community (PSAs, short films, posters), petitioning for change (city council, school board, and locally elected representatives), and drawing attention to the problem (letters to the editor, social media)		

Please add more rows if needed. (Right click in last box, "Insert Row Below")

Form adapted from Buck Institute for Education's Project Design: Overview tool. Original form available at bie.org

Other Notes: