



# Elementary STEM Centric Planning Guide



<b>Title:</b> Trash in Our Waterways	<b>Teacher:</b>
<b>Overview:</b> STEM Proficient students will engage in logical reasoning to answer complex questions, to investigate global issues, and to develop solutions for challenges, and real world problems.	<b>Grade:</b> 2
<b>STEM Standards of Practices:</b> Engage in <u>meaningful, purposeful and relevant</u> STEM activities using the Stem Standards of Practice Frameworks; student skills and knowledge indicators, instructional examples, resources and glossary.	
<p><i>STEM proficient students will be able to apply all seven Standards of Practice when demonstrating how to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.</i></p>	
<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <p style="text-align: center;"><b>STEM Standards of Practice</b></p> <ul style="list-style-type: none"> <li>■ STEM Content</li> <li>■ Integrate STEM</li> <li>■ Communicate STEM</li> <li>■ Inquiry STEM</li> <li>■ Logical Reasoning STEM</li> <li>■ Collaboration STEM</li> <li>■ Technology STEM</li> </ul> </div> <div style="flex: 1; border: 1px solid black; padding: 10px; margin-left: 10px;"> <p><b><u>Real World Problem-</u></b></p> <p>Trash is a human-created problem that is polluting waterways around the world. What can you as a second grader do to reduce the amount of trash that makes its way into the water and have a positive impact on the environment?</p> <p><b><u>Product/Prototype/Process-</u></b></p> <p>Create a physical model that reduces trash and helps the environment in some way.</p> </div> </div>	

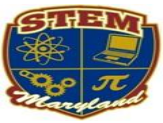
Content Standards						
<u>Science</u>	<u>Technology</u>	<u>Engineering Design Process</u>	<u>CCSS Mathematics/Practices</u>	<u>CCSS ELA</u>	<u>Social Studies</u>	<u>Fine Arts</u>
Environmental Literacy Standards: 2.B.1.1 2.B.1.2  MDSC Science Standard: 6.B.1.a	Research  Resources	Design Construct Build Test Modify a product/prototype/process	Measurement  MD.2.10 Represent and Interpret Data – collect, organize & display data about the types of trash thrown away in homes and classrooms  Standards of Mathematical Practice: Persevering	RI.2.9 Read for information about Kenya.  Select one: W.2.1 Write to persuade others to reduce, refuse, reuse and/or recycle.  W.2.2 Write to inform individuals and families of	Geography Citizenship Economics  (Location of and environmental leadership demonstrated by Unique Eco in Kenya, Africa and the economic impact.)	Aesthetic appeal  Materials for construction  Artistic expression



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			through problem solving	the benefits of reducing, refusing, reusing and/or recycling.		
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<p><b>Transdisciplinary Connections:</b></p> <p>Using a photo essay, students will identify the problem (trash in waterways) and then research to find out why the trash problem exists and what others around the world are doing to solve the trash problem. Students will read a number of different print and digital resources to expand their understanding of the problem, its impact, and what is already being done to address the problem. Students will develop and implement a personal action plan to solve the trash problem. As part of their action plan, students will create a physical model of their product/process/prototype that helps the environment and reduces, reuses, refuse, and/or recycles trash. Example: milk jug flower pot, orange juice carton wallet, recycled plastic container bird houses and bird feeders, recycled art sculptures, and old jeans grocery bags. Students will share their solution and what they have learned with their class and school peers and local community as appropriate.</p>	<p><b>Enduring Understanding:</b></p> <p>Trash is a human-created problem that is polluting waterways around the world. As such, it is up to us as humans to solve the trash problem that we have created.</p> <p>The actions we take have consequences, both positive and negative.</p> <p>There are many times when we have to solve problems created by others.</p>
<p><b>Connection to STEM Careers:</b></p> <p>Environmental Impact Specialists          Community Outreach Specialists          Chemists          Waste Management          Recycling Artists          Resource Recovery          Environmental Sciences          Statisticians          Oceanographers          Civil Engineers          Mechanical Engineers          Chemical Engineers</p>	<p><b>Essential Questions:</b></p> <p>How does trash impact our waterways?</p> <p>What is the impact of human-made trash on wildlife?</p> <p>What is our role as citizens of Earth in protecting the environment?</p> <p>Why is it important to continue to look at the trash problem over time?</p> <p>How do our actions impact the world around us?</p>