

Author: Taura McMeekin Fantastic Plastic?

Level: 3rd

School: Enfield Elementary

Name and Summary Description of Case Study

Essential Questions--Can working for environmental justice change your attitudes about plastic?

Fantastic Plastic? is a case study that asks students to explore and investigate what happens to live organisms when their environment changes as a result of plastic waste. This unit builds off of a previous case study around the use of single use plastic cups within our school and the effect that plastic waste has within our environment. In addition we look into the role of the government in making and enforcing laws that help the environment while trying to understand our role as active citizens within the process.

As science researchers, students conduct and collect data from experiments involving plastic. The case study begins by unpacking these questions, **“What is waste? Are there any other species that produce waste that won’t eventually break down? What is plastic?”** and moves into the experimental phase where students conduct and collect data from experiments with living things with and without plastic particle waste to answer the question **“Is plastic harmful to living things?”**. This case study additionally asks students as social scientist to examine what the role of the government is in making and enforcing laws to protect the environment. Students will collect plastic waste from both home and school, sort, analyze, classify and compare this data to other plastic waste data collected from around the world. Lastly students build off of our three visits to the Johnson Museum of Art and lessons learned about Willie Cole an American Eco artist who finds beauty in found objects such as irons, bicycles, water bottles and women’s shoes, transforming the ordinary and discarded into something spectacular encouraging commentary on gender, consumerism/environmentalism, sexuality and African-American identity <https://www.williecole.com/bio>. Using this knowledge students further research other eco artists from around the world who also work as change agents and transform waste into art. The goal is to bring awareness to how we interact with the environment and to better understand the impact everyday choices- consumption & consumerism-have on the collective, global environment in relationship to single use plastics and our daily choices.

Highlighting Earth Day to kickstart and involve the Enfield community, student groups gift every student and staff member a planting kit made from recycled milk cartons and seeds saved from last years sunflowers. Students explain the history and importance of Earth Day and share that planting a sunflower seed is one way to honor Earth Day and beautify our community.

Important concepts include:

- All living things need a healthy environment.
- Humans can positively or negatively impact the environment based on their daily choices and actions.
- Activism = Action
- Student voice matters, look at what you’ve already done!

*Note: Every effort has been made to make this unit “inclusive” so that all students see themselves as powerful change agents able to bring about positive change within their community & the world.

Broad Topic or Concept

Environmental & Social Science, Government and Social Activism through art

Guiding Question(s)

(Is it relevant, meaningful, provocative and accessible to students? Does it stimulate ongoing rethinking of big ideas and prior lessons? Does it provide the opportunity for students to generate a variety of plausible and arguable responses?)

- What is plastic waste?
- Is there any other species aside from humans that create plastic waste?
- How is plastic waste affecting the environment?
- What happens to organisms when their environment changes?
- What is the role of government in making and enforcing laws that help the environment? What is the role of the citizen in

helping the environment?

Standards and Skills

Content Standards	<p>3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.</p> <p>3-LS4-4. Make a claim about the merits of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.</p> <p>3.7 -- Governments in communities and countries around the world have the authority to make and the power to enforce laws. The role of the citizen within these communities or countries varies across different types of governments.</p>
Literacy Standards	<p>3.RI.3 Describe the relationship between a series of scientific ideas in a text, using language that pertains to time, sequence, and cause/effect.</p> <p>3.RI.7 Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.</p> <p>3.W.7 Conduct short as well as more sustained research projects based on focused questions that demonstrate understanding of the subject under investigation.</p> <p>3.W.8 Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.</p>
<u>21st Century Skills/Habits of Mind</u>	<p>Persistence Listening with empathy Thinking flexibly Thinking about your thinking Striving for accuracy Questioning and problem solving Applying past knowledge to new situations Thinking and communicating with clarity and precision Creating, imagining and innovating Thinking interdependently</p> <p>Social Justice Standards from Teaching Tolerance I know that the way I see myself is not always the way others see me. I know what it means to feel good about myself and I can express that I like who I am! I can celebrate what I have in common with other people while also honoring our differences!</p>
ICSD Anti-marg focus questions	<p>Is the way I see myself the same way that others see me? What does it mean to feel good about myself and how can I express that I like who I am? How can we celebrate what we have in common while also honoring our differences? What can I do to get gain confidence with speaking in front of/as part of a group?</p>

[Product or Performance](#)

(High quality, original artifact of learning that emerges from project;in service to an audience beyond the classroom)

Description:

1. Earth Day Service Learning Project

Specific content and skills to be assessed:

1.Students develop and deliver “Earth Day Planting Kits” including a pre-survey (Do you know who Rachel Carson is? Do you know what Earth Day is?), a partnership presentation within each classroom to explain the history and importance of Earth Day and the intention of their Service Learning Earth Day Planting Kits. **Skills:** *Analyzing, arguing, defining, evaluating, explaining, problem solving, questioning, reading, writing,*

<p>2. Opinion Email to Governor Cuomo</p> <p>3. Eco Art Exhibition: A 4-week interactive unfolding of Eco artist Chris Jordan's <u>Running the Numbers</u> photographs in the hallways of the school.</p> <p>4. Fantastic Plastic Gallery Exhibition:</p>	<p><i>speaking</i></p> <p>2. Student partnerships research a list of US governors and answer questions. Students do a close reading of a NYTImes article about Cuomo banning single use plastic bags in NY 2020 and answer comprehension questions.</p> <p>Students watch a video explaining what plastic is and why it is hurting the environment. In small groups, students read an article about laws that work best to cut plastic pollution finding further information to support an opinion email to Governor Cuomo.</p> <p>Students take action and co-write an opinion email to Governor Cuomo about the need to further reduce plastic pollution.</p> <p>3. Students work within their classrooms and with guest artist "Dan the Garbage Man" to understand what plastic waste is and the effect plastic waste has on the environment. Students decided where to hang four sets of four photographs within the school visible by everyone. Students display one picture at a time while asking the school community to share what they think each image is. Each week a new picture is added until the last photograph in the series reveals some staggering statistics about waste.</p> <p>Students take a trip to Ithaca's water treatment plant. Students hike along 6-mile creek to see where Ithaca's drinking water comes from and learn about the relationship between plant and aquatic life in relationship to healthy water. Students tour the water treatment plant seeing the process for filtering and cleaning drinking water. A local but renowned scientist, Dr. Susan Allen-Gil visits and shares facts about microplastics.</p> <p>Students work collaboratively to research, integrate and create informational posters displayed by each set of pictures for the school community to read. Skills: <i>Listening actively, questioning, comparing and contrasting, problem solving, reading, speaking, turn-taking, delegating, time management, resolving conflicts, team building</i></p> <p>4. Building off a community partnership with the Johnson Museum of Art, Students and teachers transform the 3rd grade classrooms and hallway into a gallery exhibition that features student's eco artwork, artist statements and video reflections. Skills: <i>Allocating resources, brainstorming, goal setting, managing time, creating, designing, imagining, improvising, innovating, problem solving, choosing a medium, evaluating message, using technology, presenting</i></p>
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<p>Audience and how product will be made public:</p> <p>1. Students present to each classroom the history and importance of Earth Day and the intention of their Service Learning Earth Day Planting Kits.</p> <p>2. Students synthesis information through a variety of both print and digital sources, to gather information and write an opinion letter to New York State's Governor Cuomo about NYS and laws banning single use plastic items.</p> <p>3. Students showcase Chris Jordan's, Running the Numbers artwork in the hallway and encourage audience members to predict what they think the images are.</p> <p>As the last of Chris Jordan's pictures go up, students add their informational posters further explaining:</p> <ul style="list-style-type: none"> • What plastic is & how is it made • Global facts about plastic waste • Solutions to plastic pollution • Creative things you can do with plastic <p>Posters include audio sound bites to address the learning needs of all people.</p> <p>4. Students present their recycled plastic eco art projects during a gallery opening including a video component that shares the artists connection to the process of working together towards social and environmental justice through art.</p>	<p>How product matters to this audience:</p> <ol style="list-style-type: none"> 1. This service learning project brings attention to a female scientist whose actions were responsible for bringing about environmental change through the eventual creation of the EPA and a global yearly celebration of Earth Day. 2. Through the process of contacting the governor, students learn that they are powerful when they use their voice as change agents and communicate what they feel should be done regarding plastic pollution within the state they live. Students learn the power of speaking up within a unified voice. 3. Visual representation of how much plastic we in the United States use within an understandable amount of time is a powerful way to communicate the need for conscious consumerism. Being able to interact with the pictures through writing opens up and encourages audience dialogue. <p>The audience is allowed to gain information through a variety of ways: visually, written informational posters & orally through shared conversations and audio sound bites.</p> <ol style="list-style-type: none"> 4. This exhibit serves as an activist project created to energize, inform, engage and activate change in audience behaviors around single use plastic while highlighting how we as individuals can embrace our individuality collectively to empower ourselves, each other and our Earth.
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Narrowed "Microcosm" of the Big Idea, Example(s), Illustration(s), Tangible/Local
(For Launch and/or Fieldwork)

*How can my daily choices regarding plastic consumption either help or harm our shared environment?
Understanding that a small pebble makes a big ripple...How can I be that small pebble as a warrior for social and environmental justice?*

Assessment

Content Standards	Learning Targets	Checkpoints/Formative Assessments	Summative Assessment(s)
<p>Part 1: Earth Day 3.RI.7 Integrate and evaluate content presented in diverse formats</p> <p>3-LS4-3. Construct an argument with evidence</p>	<p>I can prepare for our Service Learning Project Earth Day kick off!!</p> <p>I can read an article about Rachel Carson and find the main idea with supporting details.</p>	<p>Students explain through conversation what earth day is after watching a video and reading an article about Rachel Carson https://www.youtube.com/watch?v=6WA8FpGI5Sw</p> <p>Students use main idea graphic organizers and their writing notebooks to help them organize information for their Earth Day informational writing.</p>	<p>Teacher will administer a pre-survey to open lesson & a K/W/L chart to close the lesson https://docs.google.com/document/d/1QQtjzrBMBaEIQHucTO632IRXT3yz28KaZ_YZUDppB3U/edit</p> <p>Students publish informational paragraphs explaining their Earth Day SLP, who Rachel Carson is, and why Earth Day is important.</p>

<p>Part 2: Opinion Letters to Governor Cuomo 3.7 -- Governments in communities and countries around the world have the authority to make and the power to enforce laws.</p> <p>3.RI.3 Describe the relationship between a series of scientific ideas in a text, using language that pertains to time, sequence, and cause/effect.</p> <p>Part 3: Informational Poster 3.RI.7 Integrate and evaluate content presented in diverse media and formats, including visually and</p>	<p>I can take notes from several different types of sources to support my understanding of a topic.</p> <p>I can write using details to explain what Earth Day is and why I think it is important.</p> <p>I know how to reflect on our Earth Day Project.</p> <p>I know who the governor of NYS is. I know what the role of a governor is.</p> <p>I can do a close reading of a current news article to better understand the role of our state's governor!</p> <p>I know what laws work best to cut plastic pollution.</p> <p>I can use powerful opinion words and phrases to better support my opinion writing.</p> <p>I can write an opinion email to Governor Cuomo.</p> <p>I can watch a National Geographic video about plastic to better understand what it is and how it is made.</p>	<p>https://www.scholastic.com/content/dam/teachers/lesson-plans/migrated-files-in-body/graphic_organizers.pdf</p> <p>Students write informational paragraphs explaining who Rachel Carson is and why they think Earth Day is important.</p> <p>Students work in partnerships to explore state governors and find who the governor of NYS is. https://docs.google.com/document/d/1MSLV0f_R2JEdcZcBWASOPYtRL1o6X3k8vZUJWFO_NOQ/edit</p> <p>In small groups students read a NYTimes article about banning plastic bags. https://www.nytimes.com/2019/03/28/nyregion/plastic-bag-ban-.html</p> <p>Students read an article about laws that work to ban plastic on a global level. https://truthout.org/articles/what-laws-work-best-to-cut-plastic-pollution/?utm_source=sharebuttons&utm_medium=mashshare&utm_campaign=mashshare</p> <p>Students watch the video plastic 101 three times, "Like a close read but a close watch". Students use a note catcher and their writing notebooks to record information. https://www.youtube.com/watch?v=qgh0Ptk3VGE</p>	<p>Students present their learning to different classes. Presentation Rubric http://www.readwritethink.org/files/resources/printouts/30700_rubric.pdf</p> <p>Using a student reflection sheet, students reflect on their SLP. https://docs.google.com/document/d/1A157k1HSYFH5TvQ2SHtidKH2-thXpdlTg5np4DGH8PM/edit</p> <p>Students use the RAD strategy to answer comprehension questions. https://docs.google.com/document/d/1B3_4NSuB68aykBQIVHm-n4sbHVLAKUgkOv7kiOqGWus/edit</p> <p>Students learn about powerful opinion words & phrases, use an opinion graphic organizer and information from articles read, to co-write an email to Cuomo. https://www.governor.ny.gov/content/governor-contact-form https://www.scholastic.com/content/dam/teachers/blogs/genia-connell/migrated-files/opinion_graphic_organizer_legal_size.pdf</p>
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<p>quantitatively, as well as in words.</p> <p>3.W.7 Conduct short as well as more sustained research projects based on focused questions, demonstrating an understanding of the subject under investigation.</p>	<p>I understand some of the systems people use to get clean drinking water.</p> <p>I can describe what nurdles or microplastic are. I can write a question I have about microplastics in my writing notebook.</p> <p>I know what attributes make up a clear informational poster.</p> <p>I can work independently to draft an informational poster using all the information I've gathered throughout this unit.</p> <p>I can work collaboratively to create an informational poster for display.</p>	<p>Students read a book on water treatment plants. They split into 4 groups and become experts on their sections. They then participate in a jigsaw to teach and learn about each part of the book.</p> <p>To prepare for the guest speaker students watch a video about microplastic and come up with a question to ask Dr. Allen Gil. https://www.youtube.com/watch?v=KpVpJsDjWj8</p> <p>Students watch a powerpoint presentation to learn about content or information to be shared</p> <ul style="list-style-type: none"> ● Font/text/text positioning ● Relation between picture material/text ● Color selection ● Format/layout ● Originality/design idea ● Artistic overall impression ● Audience awareness 	<p>Students apply what they learned in the previous lesson to draft their own informational poster.</p> <p>Students work collectively drawing from their individual work to create one informational poster.</p>
<p>Part 4: 3.W.8 Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.</p>	<p>I can observe how different artwork is displayed while on a trip to the JMA.</p> <p>I can create a plan for what I want to create for my Eco Art Project.</p> <p>I can sequence the process for creating my art project and include all needed materials.</p> <p>I can draft out an artist statement using a model & graphic organizer.</p> <p>I can publish my artist statement using a google doc.</p>	<p>Students share through whole group discussion the different ways artwork is displayed.</p> <p>Students draft out their artist statement using a graphic organizer. https://docs.google.com/document/d/185NMMpHOd6evZADbQwhHNsnk-OWb1mp5n3-ZAnMZr5o/edit</p>	<p>Students created sketches with labels describing their art creation.</p> <p>Students write out the steps they take and the materials needed to create their project.</p> <p>Students publish their artist statement in a google doc.</p>

	<p>I can create a video to capture my reflections on this learning process.</p> <p>I can present my Eco Art project.</p>		<p>Students use SeaSaw to record a video reflecting on their learning process.</p> <p>Students present their Eco Art project during a community exhibition.</p>
Resources			
<p>Anchor Texts:</p>	<p>teacher resource Plastic: A Toxic Love Story - Susan Freinkel</p> <p>A downloadable graphic novel individual student book Is Plastic Fantastic? https://static1.squarespace.com/static/55b29de4e4b088f33db802c6/t/5aec87b2562fa7b8e1f73a8f/1525450683981/PPC_KidsBooklet-08_spreads.pdf</p> <p>Read Alouds: Farmer Will Allen, Growing Table, One Plastic Bag: Isatou Ceesay and the Recycling Women of the Gambia (Millbrook Picture Books) Two inspiring true stories of how one man Will Allen in Milwaukee and one woman Isatou Ceesay in Gambia began a social justice movement to recycle trash polluting their communities.</p>		
<p>Additional Texts:</p>	<p>examples of artwork that changes https://www.artworksforchange.org/portfolio/chris-jordan/</p> <p>article that explains what laws work best to cut plastic pollution https://truthout.org/articles/what-laws-work-best-to-cut-plastic-pollution/</p> <p>article about NY bill to ban single use plastic bags in NYS https://www.nytimes.com/2019/03/28/nyregion/plastic-bag-ban-.html</p> <p>plastics 101 National Geographic https://www.youtube.com/watch?v=ggh0Ptk3VGE</p> <p>School house rocks 3 branches of government video https://www.youtube.com/watch?v=-EISWIY9bG8</p> <p>Who is the governor of NYS? https://en.wikipedia.org/wiki/List_of_United_States_governors</p> <p>Send a message to the governor https://www.governor.ny.gov/content/governor-contact-form</p> <p>Teaching Tolerance https://www.tolerance.org/classroom-resources/tolerance-lessons/what-is-environmental-justice</p>		
<p>Experts:</p>	<p>Ecotoxicologist, Dr. Susan Allen-Gil, at Ithaca College and Lab Director, Dr. Jose Lozano, at the Ithaca Area Wastewater Treatment Facility are currently leading efforts to study microplastics in Cayuga Lake.</p> <p>A year long partnership with Carol Hockett at the Johnson Museum of Art to support students' understanding of what a museum is, what an artist statement is and how artwork is displayed to best capture its meaning. She has also been a fantastic resource for connecting us to artist locally around the world who specialize in recycled materials. Willie Cole https://www.williecole.com/bio, and El Anatsui https://www.tate.org.uk/art/artists/el-anatsui-17306/who-is-el-anatsui</p> <p>Perils of Plastic-Students learn about the world's largest "landfill," make a connection to their own lives,</p>		

	<p>and calculate how much trash they generate in a week, a year, and ten years. https://www.nationalgeographic.org/activity/perils-plastic/</p> <p>Collaboration with Marsha Accera artist and art teacher at Enfield.</p> <p>Project Look Sharp Removing Plastic from the Ocean: From Trash to Art https://www.projectlooksharp.org/front_end.php?playlist_id=6</p>
Fieldwork:	<p>Tompkins County Recycling and Materials Management 122 Commercial Ave Ithaca NY (607) 273-6632 Field trip to the Recycling and Solid Waste Center for a 40-minute presentation about the 4R's (Reduce, Reuse, Recycle, and Rebuy) and a tour of the Recycling and Solid Waste Center. Students learned that we can only recycle plastics #1, #2, and #5.</p> <p>Roxy Johnston, Watershed Coordinator (607) 273-4680: Field trip to Ithaca Watershed Treatment Plant to hike 6-mile creek to see first hand where our drinking water comes from, tour the treatment facility, enjoy lunch while we talk with Dr Allen-Gil about the research she is doing with microplastics in Cayuga Lake and the effect microplastics have on the fish living in the lake.</p> <p>Dan Flerlage and Ithaca City High School's Green Team sharing their "Story of School Trash" pictorial and script that initiated the Chris Jordan art exhibit currently circulating through the ICSD district and made available to Enfield May-June.</p>
Materials:	<p>Amanda Schachter and Alexander Levi Harvest Dome https://archinect.com/news/article/78760079/harvest-dome-2-0-is-finally-afloat;</p> <p>Chris Jordan Running the Numbers series http://www.chrisjordan.com/gallery/rtn/#silent-spring</p> <p>Maarten Van den Eynde Plastic Reef. http://www.maartenvandeneynde.com/?rd_project=183&lang=en</p> <p>Collected & cleaned trash, art supplies, seeds, soil, planting pots, computers, writing material</p> <p>Project Look Sharp https://www.projectlooksharp.org/front_end.php?playlist_id=6</p> <p>Perils of Plastic https://www.nationalgeographic.org/activity/perils-plastic/</p>
Equipment and/or Facilities:	<p>Computer, iPad, school facilities (target location for the project), QRcodes, SeaSaw classroom, Chris Jordan Running the Numbers select photographs</p>

Case Study Lesson Sequence/Target/Assessment Chart

Case Study: Fantastic Plastic?			
Lesson #, Title	Lesson Outline	Learning Targets	Ongoing Assessment

<p>Day 1</p> <p>2 lessons/sessions</p> <p>Pre-assessment</p> <p>Lessons #1 ELA/Social Studies</p> <p>Lesson #2 Science</p>	<p>Pre-assessment of students knowledge. <i>Who is Rachel Carson? What is the EPA? What is Earth Day? What is a Service Learning Project?</i> https://docs.google.com/document/d/1LXMBSS5ydUeBs6ewP7FBdOqyGe3o5GPBkMWS2DnB7q4/edit</p> <p>Introduce Will Allen as a social activist through the read aloud Farmer Will Allen, Growing Table. Highlight that what is special about Farmer Will is that he can see what others can't see. When he looked at an abandoned city lot in Milwaukee he saw a huge table, big enough to feed the whole world. Encourage students to think "big like Farmer Will" and think about what could be done at Enfield to make it more colorful & beautiful. Draw connections from science lessons of planting seeds to providing a service. Ask, What are ways we could help to make Enfield more beautiful?</p> <p>Open science lesson with a video of the "Real" Will Allen https://youtu.be/vs7BG4IH3m4 Before reading, A Fruit is a Suitcase to introduce students to the concept of seeds. A seed contains the embryo plant and stores food. A seed grows into a new plant (reproduction.)</p>	<ul style="list-style-type: none"> • I can take a quick survey to see what I know about a new topic. . I can go into another classroom to give a quick survey. *I understand that we could all work together to develop an idea to help make Enfield more beautiful. . I can listen to other people's ideas and share my ideas too. . I understand that today is about brainstorming ideas. . I can think big like Farmer Will Allen . I can sort a selection of plants and their seeds—lima bean, pea, sunflower, and corn. . I understand how a fruit helps a plant survive and reproduce by making seeds. 	<p>Record initial answers on survey handout.</p> <p>Capture students ideas with a thinking web as they share out in small teacher guided groups.</p> <p>Student groups dissect various fruits to find out how many seeds are in each fruit and record this information in their science notebooks.</p> <p>Student groups answer exit ticket questions :What is a fruit? How does a plant's fruit help it survive and reproduce? What is a seed? What function does a plant's seed have?</p>
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<p>Day 2 Lessons #3 & #4 Social Studies</p> <p>Science</p>	<p>Students learn about Rachael Carson, the EPA & Earth Day by doing a close viewing of a video and taking notes.</p> <p>Rewatch video modeling how to pause & take notes. Explain that the purpose of using a note catcher is to support student's informational writing explaining when Earth Day is, who Rachel Carson was and the role of the EPA (government) in helping to protect the environment. https://www.youtube.com/watch?v=Oj5CjLNDr0o</p> <p>Reflect on Day 1's lesson-highlight students small group ideas from yesterday and add any new ideas. Teachers help students to make connections between a service learning project and the work of Rachel Carson.</p> <p>Students investigate the effect water has on seeds by setting up seed sprouters-1 with plastic & 1 without and observing and recording changes over a week. Vocabulary review: predict, germination.</p>	<ul style="list-style-type: none"> • I can watch a video made by a local student from EcoVillage about an environmental hero-Rachel Carson. • I understand how to review the video in parts stopping to focus on the main idea and supporting details from one section at a time. . I can use a note catcher to better understand who Rachel Carson is, the EPA and the importance of Earth Day. . I can work in a small group to share information I learned about Rachel Carson, the EPA and Earth Day. . I can begin to make connections between a service learning project and the work of Rachel Carson. . I can predict what effect I think water has on seed germination (lima bean). . I can predict what effect I think water and plastic have on seed germination. . I can set up two science experiments with my table group to observe what effect water and plastic have on seed germination. 	<p>Students focus on main idea with supporting details from the video source using boxes and bullets in their ELA notebooks.</p> <p>Students reflect in their ELA notebooks any connections they are making between a service learning project and the work of Rachel Carson using the available sentence stems: <i>I wonder...</i>, <i>I think...</i>, <i>I'm starting to realize...</i></p> <p>Students investigate the effect water has on seeds-1 with plastic & 1 without-observing and recording changes in their science notebooks over a week.. <i>What effect does water have on seeds? What effect does plastic have on seed growth?</i></p>
<p>Day 3 Lesson #5 <i>over 2 class periods</i> ELA</p>	<p>Do a close reading of Scholastic News Article, <u>Saving the Sea</u>.</p> <p>Through discussion connect this article, science experiments and previous learning to the work of Rachel Carson, Earth Day and our SLP. Students decide on a service learning Earth Day project.</p>	<ul style="list-style-type: none"> • I can do a close reading of the article, <u>Saving the Sea</u>. • I can reread the article with a partner to find the main idea and details. . I can connect this article, the work we are doing in science and what I've learned about Rachel Carson to help my class decide on a service learning Earth Day Project. 	<ul style="list-style-type: none"> • Students read the article 1 time independently. • Students read the article a 2nd time in small groups guided by a teacher. . Students work in reading partnerships to reread the article a 3rd time taking notes on the main idea and supporting details.

<p>Day 4 and 5 Lesson #6 and #7 (ELA and Science)</p>	<ul style="list-style-type: none"> •Teacher models how to use the information from “ note catching” and an informational graphic organizer to draft informational Earth Day paragraph/s. <p>Students work independently to draft an informational paragraph/s explaining our Earth Day SLP and why it is important. Teacher highlights the structural and organization of writing with a specific purpose that connects information on a topic from multiple sources. Debrief & share out in small groups.</p> <p>Peer revision and Editing before informational publishing of paragraph.</p> <p>Throughout this process students are collecting and preparing milk cartons from the cafeteria to be used as planters for the Earth Day Service Learning Project. Students mix soil (sand, potting soil, compost), preparing seed bags and planting kits for each class.</p> <p>A downloadable graphic novel individual student book <u>Is Plastic Fantastic?</u> https://static1.squarespace.com/static/55b29de4e4b088f33db802c6/t/5aec87b2562fa7b8e1f73a8f/1525450683981/PPC_KidsBooklet-08_spreads.pdf</p> <p>Students find out and compare how much water a lima bean (without plastic/with plastic) soaks up in a week.</p>	<ul style="list-style-type: none"> • I can observe how to take my notes and draft informational paragraphs about Earth Day. . I can work independently to draft an informational paragraph/s explaining our Earth Day SLP and why it is important. . I can remember to use linking words to connect information on a topic from multiple sources. . I can work with a partner to revise and edit my informational paragraphs. . I can publish my informational paragraphs. . I can recycle milk containers to be used as planters for our SLP. . I can rinse out the containers and make holes in the bottom for drainage. . I can enrich potting soil with both compost and sand to increase the health of the soil by providing nutrients and minerals. . I can harvest the seeds from sunflowers grown last year. . Students read <u>Is Plastic Fantastic</u> and discuss it in small groups before conducting a science experiment. . I can compare how much water a lima bean with plastic and without plastic- absorbs in one week. 	<ul style="list-style-type: none"> • Students draft informational paragraph/s in their writing notebooks.. <p>https://docs.google.com/document/d/1peD4CXwdIL6gaRuN0GiiqR2ZJw_nqlr5GtaLkqQQDOQ/edit</p> <p>. Working with a partner to improve one’s writing and student agency through, compromise, collaboration and reliability skills-students publish writing.</p> <p>http://www.readwritethink.org/files/resources/printouts/Editing%20Checklist.pdf</p> <ul style="list-style-type: none"> • Students answer questions in their science notebooks. <i>How much water does a lima bean seed soak up? What if plastic waste is in the environment, does that affect the amount of water a seed can absorb?</i>
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<p>Day 6 (Earth Day) Lessons #8 and #9 ELA</p>	<p>Students teach others about Earth Day and share their SLP by going into PK-5th grade classrooms inviting all students to plant sunflower seeds and help to make Enfield more colorful.</p> <p>Students reflect on their Service Learning Project.</p> <p>Read Aloud One Plastic Bag: Isatou Ceesay and the Recycling Women of the Gambia. The inspiring true story of how one African woman began a movement to recycle the plastic bags that were polluting her community.</p> <p>To prepare students for the upcoming writing/government lessons show the 3 branches of government video. https://www.youtube.com/watch?v=-EISWIY9bG8</p> <p>Review the 3 branches of government.</p> <p>Explain the differences and similarities between the federal government and the state government using a Venn diagram..</p> <p>Ask, Who is the governor of New York State? What is the governor's role? Students will work in partnerships to research a list of US governors and answer related questions. https://docs.google.com/document/d/1NaJfwOCnXMivLy7Mj16Jz8BrDY9SYv_BSJf_GLW6vQ/edit</p>	<ul style="list-style-type: none"> • I can finish putting together Earth Day planting kits for each classroom. • I can work in a partnership to practice presenting using a presentation rubric. <p>. I can present what Earth Day is and why I think it's important to practice environmental activism.</p> <p>. I can reflect on how I think our Earth Day presentation went.</p> <p>. I can understand how what you think, what you say and what you do can have a profound impact on the environment.</p> <p>.I know what the 3 branches of government are.</p> <p>. I understand how federal and state governments are similar and different.</p> <ul style="list-style-type: none"> • I can work in a partnership to research who the governor of NYS is. 	<p>Students will finish putting together Planting Kits.</p> <p>Students will work within a partnership to practice presenting using a presentation rubric. http://www.readwritethink.org/files/resources/printouts/30700_rubric.pdf</p> <p>Written reflection: What was it like doing this service learning project and teaching others about Earth Day? What did I learn in the process? What would I do differently? What am I most proud of? https://docs.google.com/document/d/1A157k1HSYFH5TvQ2SHtidKH2-thXpdITg5np4DGH8PM/edit</p> <p>Encourage student discussion around the power of choice and how that choice affects what we think, what we say and what we do. Use Rachel Carson, Will Allen and Isatou Ceesay as touchstones for this important work. Highlight the impact plastic is having on a global level.</p> <p>Exit ticket: What is one branch of government?</p> <p>Students create a Venn diagram in ELA notebook showing similarities and differences between federal & state governments.</p> <p>Save partnership research handouts.</p>
<p>Day 7 and 8 Lessons #10, #11 and #12 ELA</p>	<p>Students work in small reading groups to do a close reading of a NYTimes article https://www.nytimes.com/2019/03/28/nyregion/plastic-bag-ban-.html and answer comprehension questions.</p>	<p>. I can preview comprehension questions before reading an article to frame my thinking.</p> <p>. I can do a close reading of a current news article to better understand the role of our</p>	<p>Collect student's NYTimes article comprehension questions.</p>

<p>Science</p>	<p>https://docs.google.com/document/d/1zlCJ-Qo9WdcMb-IHdcxxLw1ybsX_kX2kN6OnEq3a9vI/edit Teachers will model how to read the comprehension questions before reading the article and how to highlight and number the text.</p> <p>Students share their thinking from observing and charting the growth of their seeds with and without plastic before watching plastics 101 video.</p> <p>https://www.youtube.com/watch?v=ggh0Ptk3VGE</p>	<p>State's Governor.</p> <p>. I can reread the article and highlight and number the text to support my comprehension answers.</p> <ul style="list-style-type: none"> • I know how plants grow and survive <p>. I can analyze the effect plastic has on the growth of seeds by comparing the growth rate of seeds grown with and without plastic in the soil.</p> <ul style="list-style-type: none"> • I can think deeply about how plastic might alter this development. <p>. I can watch a video to better understand what plastics are made up of and why they are hurting the environment.</p>	<p>Students document in their science notebook the difference in growth between seeds grown in soil with plastic and those without plastic. Students examine germinated seeds to determine similarities and differences in the way the organisms grow.</p> <ul style="list-style-type: none"> • Germination is the onset of a seed's development. • Plants need water, light, space and nutrients to grow-not plastic. <p>Students answer these questions in their science notebook. What are plastics anyway and why are they hurting the environment? Using what you know about plastic, what can you infer is going on with your plants grown with plastic?</p>
<p>Social Studies</p>	<p>In small reading groups, students read an article about the best laws to cut plastic pollution-finding information to use in an opinion email to Governor Cuomo about reducing the use of single use plastic items.</p> <p>https://truthout.org/articles/what-laws-work-best-to-cut-plastic-pollution/?utm_source=sharebutton&utm_medium=mashshare&utm_campaign=mashshare</p>	<p>. I can read an article about what laws are best for stopping plastic pollution.</p> <p>. I can take notes and highlight facts from the article I think are important.</p> <p>. I understand what laws work best to cut plastic pollution.</p> <ul style="list-style-type: none"> • I know what plastics are and why they are harming the environment. 	<p>Students mark up their text with a highlighter/notes. Teachers check in to see where student understanding is.</p> <p>Student reflection: In your opinion what single use plastic item do you think is the worse for the environment and why?</p>

<p>Day 9</p> <p>Lessons #13, and #14 ELA/ Social Studies</p>	<p>Explain to students that they will be writing an email to the Governor letting him know how they feel about plastic pollution in New York State.</p> <p>Brainstorm using a T-chart things that are working to stop plastic pollution and things that could be done to improve plastic pollution.</p> <p>Students will be introduced to an opinion words and phrases anchor chart and reminded to use the supports in the room like word walls, dictionaries and anchor charts to make their writing more powerful.</p> <p>Students use a graphic organizer and information from recently read articles to draft an email to Governor Cuomo https://www.scholastic.com/content/dam/teachers/blogs/genia-connell/migrated-files/opinion_graphic_organizer_legal_size.pdf</p> <p>Students co-create a class email to Governor Cuomo. Send a message to the governor~ https://www.governor.ny.gov/content/governor-contact-form</p>	<p>Teachers and students co-create a T-chart listing things that are helping to decrease plastic pollution in NYS and adding ideas of things to help decrease plastic pollution even more.</p> <p>. I know how to read the room and use the opinion words and phrases anchor chart to support my opinion about plastics.</p> <p>. I can use some powerful opinion words and phrases in my draft email to the governor.</p> <p>. I can write an email to Governor Cuomo letting him know what my opinion is about plastic pollution in NYS and some suggestions for what else could be done to help with this global problem of plastic pollution.</p> <p>. I can co-create an email with my class to Governor Andrew Cuomo.</p>	<p>Keep co-created T-chart up in the room for student reference.</p> <p>Listen to students conversations. Are they referencing the opinion word and phrases anchor chart?</p> <p>Keep a copy of student's email draft to Governor Cuomo.</p> <p>Print a copy of the co-created email and have students take it home to share with their families and caregivers.</p>
<p>Days 10, 11 and 12</p> <p>Lessons #15, #16 and #17</p> <p>Science and Social Studies</p>	<p>Students watch the video plastic 101 three times, "Like a close read but a close watch". Students use a note catcher and their writing notebooks to record information. https://www.youtube.com/watch?v=gghOPtk3VGE</p> <p>After viewing the video, students work in small groups to begin to brainstorm possible informational poster topics..</p> <p>To prepare for the water treatment plant trip, students read a book on water treatment plants. They split into 4 groups and become experts on their sections. They then participate in a jigsaw to teach and learn about each part of the book.</p> <p>To prepare for the guest speaker students watch a video about microplastic and come up with a question to ask Dr. Allen Gil. https://www.youtube.com/watch?v=KpVpJsDjWj8</p>	<p>. I can watch a National Geographic video about plastic to better understand what it is and how it is made.</p> <p>. I can brainstorm an informational poster topic.</p> <p>. I understand some of the systems people use to get clean drinking water.</p> <p>. I can describe what nurdles or microplastic are. I can write a question I have about microplastics in my writing notebook.</p>	<p>Students use the boxes and bullets note taking strategy to capture information in their notebooks while watching the video.</p> <p>Students regroup as a whole group to share and listen to each other's ideas.</p> <p>Students reformat into 4 different groups having to share the section they are experts on-6 different times.</p> <p>Students write one question about microplastics to ask Dr. Allen Gil.</p>

<p>Field Experience</p>	<p>Students take a trip to Ithaca's water treatment plant. Students hike along 6-mile creek to see where Ithaca's drinking water comes from and learn about the relationship between plant and aquatic life in relationship to healthy water. Students tour the water treatment plant seeing the process for filtering and cleaning drinking water. A local but renowned scientist, Dr. Susan Allen-Gil visits and shares facts about microplastics.</p>	<p>. I can hike the trail of 6-mile creek to see where Ithaca's drinking water comes from.</p> <p>. I can understand the relationship between plant and aquatic life in relationship to healthy water.</p> <p>. I can tour a water treatment plant seeing the process and systems for filtering and cleaning drinking water.</p> <p>. I can learn new facts about microplastics from and expert in the field.</p>	<p>3-2-1 homework reflection: 3 things you learned 2 things you found interesting and would like to learn more about 1 question you still have</p>
<p>Day 13 and 14 Lessons #17 (ELA)</p>	<p>Teacher asks students to think back and share with a think partner different informational posters they've seen. <i>I'm thinking about some of those informational posters we saw at the water treatment plant yesterday. What do you remember about those posters? How did they catch your attention?</i></p> <p>Students are encouraged to walk and talk through the hallways noticing different posters outside the classrooms.</p> <p>Students return and share their thinking.</p> <ul style="list-style-type: none"> ● Font/text/text positioning ● Relation between picture material/text ● Color selection ● Format/layout ● Originality/design idea ● Artistic overall impression ● Audience awareness <p>As a class, teachers and students decide what four poster groups to create and which students will be in what group.</p> <p>Poster Groups: What is plastic?, Facts about Plastic, Transforming Plastic and Solutions to Plastic Pollution</p>	<p>. I can share with my partner what I noticed about the informational posters at the treatment plant.</p> <p>. I can take a partner walk through the hallways being respectful of myself and others.</p> <p>. I can observe the informational posters in the hallway noticing what attributes catch my attention.</p> <p>. I can share what I think makes a good poster and why.</p> <p>. I can listen to different ideas from my classmates about what posters we should have.</p> <p>. I can contribute to the discussion about what informational posters to create.</p>	<p>Teachers support students in the hallway assessing their ability to self-regulate and commenting on positive behavior.</p> <p>Observe student discussions. Who is speaking up? Remind students that if they find they are always talking to maybe step back and for those who don't share maybe try to step up.</p>

<p>Day 15 and 16 Lessons #18 and #19 ELA and Social Studies</p>	<p>Students draft an informational poster about plastic using some of the attributes that make a good poster.</p> <p>Students share their posters in their small groups deciding what to use from the individual posters to recreate one collective poster.</p> <p>Students finish up their group posters and take the National Geographic Plastic Pledge. https://www.nationalgeographic.com/environment/plasticpledge/</p> <p>Show this video of fisherman in Kenya building a boat entirely from plastic waste as a way to raise awareness about marine plastic pollution. https://www.nationalgeographic.com/environment/2019/04/boat-made-from-plastic-waste-one-kenya-solution/</p>	<p>. I can work independently to create a draft of an informational poster about plastic.</p> <p>. I can work in a collaborative group to create a clear informational poster.</p> <p>. I know what it means to make a pledge.</p> <p>. I can see that people in other parts of the world are coming up with solutions to plastic problems too.</p>	<p>Students apply what they've learned in previous lessons to draft their own informational poster.</p> <p>Students work collectively drawing from their individual work to create one informational poster.</p> <p>Students take a Plastic Pledge and reflect in their homework notebook.. <i>What is one thing you will do starting tomorrow, to use less plastic? Why?</i></p>
<p>Days 17 and 18 Lessons #20 and #21 (math and Social Studies)</p>	<p>Students work with guest artist "Dan the Garbage Man" to further understand what plastic waste is and the effect plastic waste has on the environment. Dan introduces students to the artwork of Chris Jordan. Dan and the students work together to decide where to hang four sets of four photographs within the school visible by everyone. Students display one picture at a time while asking the school community to share what they think each image is. Each week a new picture is added until the last photograph in the series reveals some staggering statistics about waste.</p> <p>As the last of Chris Jordan's pictures go up, students add their informational posters next to each set of photographs further explaining:</p> <ul style="list-style-type: none"> ● What plastic is & how is it made ● Global facts about plastic waste ● Solutions to plastic pollution ● Creative things you can do with plastic <p>Posters include audio sound bites</p>	<p>. I can better understand how much plastic we in the USA use after viewing Chris Jordan's Running the Numbers photographs.</p> <p>. I understand that the phrase "conscious consumerism" means that the person buying something is aware of what they are buying and the impact that purchase has on the environment and the people who live there.</p> <p>. I can study selected prints from Chris Jordan's Running The Numbers exhibit to better understand the role and responsibility we as individuals play in this enormous issue of plastic pollution.</p>	<p>Math challenge-have students come up with morning work problems based off of the statistics from Chris Jordan's Running the Numbers photographs.</p> <p>Students unpack the phrase, "conscious consumerism" by giving a personal example of a time when they were being a conscious consumer and a time when they weren't.</p> <p>Informational posters hung up in the hallways augmenting the exhibit.</p>

	to address the learning needs of all people.		
<p>Day 19 and 20</p> <p>Lesson #22 (maybe over several sessions)</p>	<p>Teachers dump out all the recyclable waste students collected over spring break staging a “toxic” zone, lock the door and put a sign up that says, “Toxic, do not enter!” Students talk outside the hallway wondering what is going on. Students enter into the other 3rd grade classroom. Teachers continue role playing saying the principal and custodian will let us know as soon as everything is safe. The nurse comes in with gloves and face masks saying as long as we enter slowly and wear the masks and gloves, we can enter the room. Students and teachers dress in the appropriate safety wear and slowly enter the classroom.</p> <p>Students spend then next few days sorting, weighing and analyzing the waste. Students decided how to classify the waste, count it and record their data. What type of waste is there the most of? Least of? How much recyclable waste do we create? What if the whole school collected their waste for a week, how much waste would that be?</p>	<p>. I can sort, weigh and make an array to show how much “garbage” was collected in each category during a week/month/year (hard plastics, medium plastics, soft plastics, cardboard/paper, tin/foil & misc).</p> <p>. I can use an operation I’m comfortable with to figure out how many pieces of “trash” we collectd all together.</p> <p>. I can challenge myself to multiply a triple digit number by a double digit number.</p> <p>. I can analyze the trash data to notice patterns and reflect on what I could do to reduce my plastic use.</p>	<p>Teachers allow students to lead the process of figuring out how to sort and count the trash supporting when needed.</p> <p>Students used multiplication arrays and repeated addition showing their work on white boards.</p> <p>Student groups write their total trash amounts on the class white board</p> <p>Students used different strategies to figure out the grand total equaling 711 items.</p> <p>Challenge students to multiply 711 by 12 the total number of classrooms in the school. https://docs.google.com/document/d/1fKEQdkXHW2VvKH154fBP7xKzpAysl01MakVdg5QakmBU/edit</p> <p>Students write a paragraph to reflect about their process for entering a “toxic” space.</p>
<p>Days 21 - 25</p> <p>Lessons #23, #24 and #25</p> <p>ELA/Social Studies</p>	<p>Teach students that the waste they see in front of them will be transformed into Eco Art-art with a purpose. Remind them of the work we saw and learned about at the JMA by eco artist Willie Cole who made an enormous chandelier out of water bottles, https://www.williecole.com/colombia-project-1 Korean artist Yong Ho Ji who made a mythical multi-headed creature out of discarded tires,</p>	<p>I know what an Eco Artist is. I can draft a plan for what I can create for the Eco Artist Exhibit.</p>	<p>Students draft their plans for an eco art project in their ELA notebooks.</p>

	<p>https://www.autoevolution.com/news/south-korean-artist-turns-scrap-tires-into-frighting-sculptures-video-photo-gallery-87795.html and El Anatsui an artist from Ghana living in Nigeria who hasn't just turned something discarded into something beautiful but his use of bottle caps hints at broader topics such as global consumerism and its history, including slavery.</p> <p>https://www.tate.org.uk/art/artists/el-anatsui-17306/who-is-el-anatsui</p> <p>Students sketch a plan for what they will make, the materials needed and the sequenced steps to completion.</p> <p>Students revisit the above studied artist to read examples of different artist statements. Teacher models a format for writing an artist statement. Students write their own artist statements.</p> <p>Carol Hocket from the JMA talks with students about display elements like space, flow and lighting. Students decide where and how to best display their artwork.</p> <p>Tying it all together, students work with ICSD technology specialist Angela Levy to create a video component reflecting on their hopes and dreams and the impact this work has on their audience.</p> <p>Students present their Eco art project at an exhibition.</p> <p><i>What has this experience been like for you? Would you like to do something like this again? Why or why not?</i></p>	<p>I can create my Eco Art project</p> <p>I can write an artist's statement</p> <p>I can decide how to exhibit my artwork.</p> <p>I can make a video explaining my hopes and dreams for this art exhibit.</p> <p>I can enjoy presenting my Artwork at the Exhibition.</p> <p>I can reflect on the process of being an Eco Artist and share my feelings about the process of displaying my Eco Art project with my classmates.</p>	<p>Using google docs, students publish their artist statements. https://docs.google.com/document/d/185NMMpHOd6evZADbQwhHNs nk-OWb1mp5n3-ZAnMZR5o/edit</p> <p>Students exhibited artwork</p> <p>Reflection video</p> <p>Students present their Eco Art Project</p> <p>Student written reflection <i>How has being an Eco Artist working for environmental justice changed your attitudes about plastic?</i> https://docs.google.com/document/d/1PSTBtjwKCK6YQCqg5mrtRSQTqMkwfzlmQzrlsVfdSeE/edit</p>
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Case Study Teacher Reflection Questions

Think about who lives on the periphery of the classroom community and why? What can we as educators do to support these students?

Grouping: Is ability grouping necessary? Try different ways of organizing groups of students in the classroom. Rather than creating separate activities based on a preconceived idea of ability, students could work through tasks with differing levels of challenge. This

allows them to think about what they can achieve and does not label anyone incapable. Provide open ended activities that require the students to problem-solve and draw on a range of skills without predetermining what students can achieve before they have started.
What informational poster topics should we cover? As an Eco Artist what will you create?

Language: Check it! (Ok, guys...) Also watch body language and vocal inflection.

Relevant Curriculum: Who decides the curriculum? Is it representative of the students in the class, reflecting their experiences, histories and questions? Ask them what they would like to learn about and link together subjects across the curriculum to support that. Encourage conversations around the points of view represented in lessons (history, science or ELA). Add questions to encourage students to think about whose point of view we are hearing. For example, drawing student's attention to the gender of scientists (Rachel Carson then/Susan Allen-Gil now).

Behavior Management: Can the language around "bad" behaviour be challenged to make room for more compassionate understanding of students who don't so easily conform and focus more on supporting those students to feel as if they belong?

Relationships: Make teacher-student relationships and the relationships between students in the classroom a priority. It's these relationships that allow the student to be seen as a person. When I can connect with the students in front of me by respecting them as people, listening to their point of view, acknowledging their difficulties and acting from a place of compassion, I end up being able to critique the assessments the students take, rather than the students themselves. It is from here that we together build a classroom that is more inclusive.