DISTRICT OF COLUMBIA
PUBLIC SCHOOLS

Grade #: 3rd Course Name DC Recycles/Zero Waste Party
Unit #: *Reduce!*

Overview and Goal of the Lesson: This lesson is designed to be used by the Green Team School Club to further their understanding of why we should reduce the waste we produce, and how we can go about it. It is also designed to engage the parents of the students in the goal of reducing our waste by inviting them to the culminating party. A variety of options to secure the non-disposable dishes and serving items could include a class/club project such as gofundme, Donorschoose, a store registry such as used for showers or weddings or other school sanctioned fund raiser.
Although this lesson is designed to be appropriate for 3rd graders, which is the average age level of the students in our Green Team at JBES, it can easily be modified for lower, higher or mixed grade levels.
The following areas will be explored over time, prior to the culminating activity described in this lesson plan. Note that the lesson plan itself will take place over 2 different days.

1. Ramifications of waste, particularly plastics, on landfill, incinerator sites, the ocean and the environment in general. https://www.washingtonpost.com/news/energy-environment/wp/2017/07/19/theres-literally-a-ton-of-plastic-garbage-for-every-person-in-the-world/ (Great resource for teachers!)

http://www.greeneducationfoundation.org/nationalgreenweeksub/waste-free-snacks.html (Waste Free Snacks. The Green Education Foundation challenges schools nationally to have Waste Free Snacks starting in February. DCPS will kick off plastic reduction Reduce First Challenge in February. See note of DC's Sustainability plan for zero waste by 2032 https://dgs.dc.gov/node/1177100)

https://www.youtube.com/watch?v=73sGgmZoMBQ (Animated video *Plastic Planet*)

https://www.youtube.com/watch?v=yaDx-WJAsaE (How it feels to be an animal stuck in plastic)

https://www.washingtonpost.com/national/health-science/a-campaign-to-eliminate-plastic-straws-is-sucking-in-thousands-of-converts/2017/06/24/d53f70cc-4c5a-11e7-9669-250d0b15f83b_story.html?tid=a_inl&utm_term=.371654b5d4d8 (Environmental impact of

soda straw. Note that the Sierra Club would welcome supporting any schools that would like to take on a similar project. Our team at DGS could help connect us to the club for support in this project : DGS.Recycles@dc.gov

http://www.trashisfortossers.com/p/the-steps.html (Great resource for teachers, not necessarily to show to students, to help inspire us to take our trash reduction to the next level.)

http://www.trashisfortossers.com/p/trash-is-for-tossers-youtube.html (Also a great resource for teachers, not necessarily to show students. The mason jar full of trash versus our bags of trash could be a great visual to drive home the Reduce concept)

2. Baseline information will be gathered from a party (our Green Team has several parties a year to celebrate accomplishments) in which we use typical disposable items including plastic cutlery, disposable plates, paper napkins, paper towels, paper or plastic disposable cups, plastic liners for trash, optionally plastic or paper tablecloths and compostable drinking straws. In order to get the baseline, students will be provided with gloves, and will count items that are discarded after the party, into the trash and recycling bins. Discarded food that was served will be weighed. Photos will be taken of the waste and recycling bins.
3. Zero Waste Concept will be introduced and explored: **zerowaste**world.org/**zero-waste**-faq
   "At its most basic, **zero waste** is about significantly reducing, and eventually completely eliminating, the amount of stuff that we send to disposal." The *How-to-Guide for Recycling at Events in DCPS Buildings* should be reviewed : **http://tinyurl.com/y8b5l2np**
   The DC goal of being a Zero Waste city by 2032 should also be reviewed by the teacher: **http://tinyurl.com/yaujdwf8**

4. A poster will be created with one item from each of the categories listed in item # 2 attached. This will be used as a visual when determining what non-disposable items we need for the party.
5. The distinction between the practices of Reduce versus Recycle and disposable versus non-disposable will be explored. This site will help to clarify for the teacher what the numbers on the plastics mean: http://learn.eartheasy.com/2012/05/plastics-by-the-numbers/ Students should be taught to understand that what is recyclable in whatever locality we are living or visiting in varies depending on the recycling program in that locality. DC recycling list: https://dpw.dc.gov/recyclingcompostlist
6. The students will be challenged to brainstorm what non-disposable items can be substituted for the disposable items.
7. Cloth napkins, which will be kept at school, will be made and individually decorated by each student with fabric pens. The teacher will be responsible for assuring that the napkins are laundered between use. http://www.thekitchn.com/entertaining-tip-diy-frayed-edge-linen-napkins-187513 (As an alternative to this, each napkin could be cut using pinking shears.)

Essential Question(s): How can we reduce the waste we produce at events?

NGSS Emphasized and Addressed in this Lesson Sequence:

Performance Expectations	Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	3-5-ETS1-1 Ask questions and Define Problems Generate and Compare Multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. Plan and Carry out Investigations	ET.1SA ● Possible solutions to a problem are limited by available materials and constraints. The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one	(3-5-ETS1-1) ● People's needs and wants change over time, as do their demands for new and improved technologies. ● Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)

		• meets the specified criteria.	

Materials

Item	Quantity	Purpose
Poster board, markers and tape	2 poster and roll of tape. 1 set of markers	Visual Reminder of place setting and serving items for the party/ Poster with Results of reduction challenge
cloth napkins	1 for each party attendee	substitute for paper napkin
cutlery (not disposable)	1 for each party attendee	serving for refreshment
non-disposable cups and plates	one for each party attendee	serving for refreshment
plastic gloves, paper liner for trash, scale camera (cell phone or other type)	3 sets of gloves, 2 paper liners	determining waste following party
paper, envelope and pens, markers	Sufficient for each invitation	Invitation to invitees to culminating party
party food! - veggies, water with fruit, fruit icey, all fruite ice cream or something that requires use of a spoon)	enough for all party attendee	motivation for teaching the concept of Reduce
container with lid	1	store food scraps to go into cafeteria compost
newspaper and stapler	6 sheets, 1 stapler	create liner for trash can (since the custodian will be placing the trash in another larger plastic bag before hauling it to the dumpster

5E Lesson Sequence

Total Duration: *115* minutes			
5E Model Stage	**Duration**	**Teacher and Student Actions**	**Notes**

Engage	*10* minutes	What Teacher Does	Explains the challenge of having a Zero Waste Party	Students will be steered to include an item (such as fresh fruit icey, fruit soup, ice cream made of only fruit etc.) that require the use of cutlery, so we can grapple with the challenge of not just including finger foods on our menu. Teacher should assure that all menu items are consistent with the Healthy Schools standards.
		What Students Do	Students come up with a menu	
5E Model Stage	**Duration**	**Teacher and Student Actions**		**Notes**
Explore	*20* minutes	What Teacher Does	Challenges the students to come up with items needed to eat and serve the food.	All items must be non-disposable
		What Students Do	Create poster with an example of each item needed taped or velcroed onto the poster	
5E Model Stage	**Duration**	**Teacher and Student Actions**		**Notes**
Explain	*25* minutes	What Teacher Does	Assist students to compose sample invitations to the party on the board. Teachers should determine if the invitation will go to parents, other green teams, custodial staff, administrators etc.	An additional handout discussing the importance of reducing rather than simply recycling will be sent with the invitation.
		What Students Do	Students complete invitations and address envelopes	
5E Model Stage	**Duration**	**Teacher and Student Actions**		**Notes**
Elaborate	*30* minutes	What Teacher Does	Directs students to set up for the party, including gathering their personal serving items from their bookbags.	Elaborate and Evaluates parts of the lesson takes place on a separate day from the first 3 stages.
		What Students Do	Set up for party. Partake of food.	
5E Model Stage	**Duration**	**Teacher and Student Actions**		**Notes**

Evaluate	*30* minutes	What Teacher Does	Reminds students where the marked receptacles are for waste, recycling and compost that will be taken to the cafeteria the next day.	The data including the photos from the baseline party and this party will be compared and discussed. If there are more people in attendance compared to the baseline party, only the waste created by the number of people from the original event will be included in this data. Data will be shared with DGS.Recycles@dc.gov Custodial staff will be invited to comment on how the work of the students impact their jobs. Educators should provide motivational comments to the participants and invitees about participating in the Reduce First Challenge and posted on the DGS website.
		What Students Do	Students complete the clean up, count and weigh the items in the waste and recycling, and take photos of the containers.	