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Environmental Studies Curriculum

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IMP: Environmental Studies Curriculum

by Chloe McCloskey

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IMP:Environmental Studies Curriculum (Independent Study)
Chloe McCloskey

Abstract

This 3rd grade curriculum aims to serve two main purposes: empowering students with knowledge to alleviate some of their climate change anxiety and to prevent them from developing harmful, hard to break habits, like ubiquitous plastic consumption/ overconsumption in general, by giving them the tools to do better. There is an emphasis on reactivating solutions we already have but stopped employing, to shift focus from reinventing the wheel towards reinventing the way the driver sees the wheel and remembering the processes/habits of mind that enabled the wheel to once function without fueling our destruction. To begin, lessons focus on understanding the key terms reduce, reuse, recycle and examining their order as well as the reasons why that is important to know and honor. Immediately after, children are thrust into their first hands-on recycling experiences which also act as their community service initiatives. They learn about taking direct action by collecting and remaking crayons through the process of melting down broken bits in molds, as well as how to partner with companies like Crayola to collect and ship markers for recycling since melting down plastic is too hazardous to do ourselves. Next, they'll explore composting, how it works, its purpose (to keep things out of landfills /create a natural soil replenisher) and what materials do/do not biodegrade which also plants a seed in their minds about natural versus unnatural materials/where everyday things come from, including soil. While composting clarifies the definition of recycling (breaking things into their smallest parts to be reborn as something new) it also ignites a spark of recognition essential to what comes next. As nature's recycling, composting is the most original, traditional practice that exists, so original to this planet that it did not require human action long ago. That initial ember lights the way to other traditional practices/beliefs, like sewing and making things last through conscious care and creativity. Repair will be examined and added to the more

commonly used 3R's, followed by a class activity in which students learn basic sewing skills using community sourced fabric as a means of simultaneously practicing repair, reuse and consequently reduce, by purposefully choosing to make functional items like shopping bags and handkerchiefs that replace their disposable counterparts.

Contents

Lesson One *(within the first two weeks of September, 30-45 minutes)*	
Objective(s)	• Students will understand how the three R's can be applied in their everyday, real-world school experiences, by brainstorming ideas to inform snack/lunch practices. • Students will come to literal and figurative interpretations of the three R's by collaboratively exploring definitions and real-world applications. • Students will recognize why we care about the three R's by connecting to our understandings around the responsibility each member of a community has to themselves, the collective and the spaces they inhabit.
Cross-Curricular Connections	• Initial SS unit (Commons/Community) • ELA and Science (vocabulary/context) • SEL (collaboration/communication/community norms)
Procedure	***Beginning:*** *5 minutes (in seats)* • Start the lesson by sharing with students that we'll begin exploring the three R's today, something we'll do a lot throughout the school year. ***It's important to understand the words we use, especially when we hear them a lot but haven't necessarily thought about what they really mean. Today we're going to think about what Reduce, Reuse and Recycle mean and then get into some of the ways we can use/apply them in our school community. Speaking of which, as you know we've been talking quite a bit about what community means at Trevor and what we can do to make sure we build a strong community from the start so we'll do some thinking about that as well in this lesson.*** • Open **Lesson 1 (3 R's definitions) chart** and solicit definitions from the class, using each word in context to help support students. *(Examples: I reduced my screen time so I could talk with my family more instead, I can reuse my water bottle because it's metal, Recess paper can be recycled and turned into a cup)* • Record definitions on the chart (type or write on SB as preferred). • Anticipated responses (respectively): use/make less, use again/repurpose, transform/change/breakdown materials like plastic, glass, paper and metal, make them into new things

Middle: *20-30 minutes (move to a gathering on the floor by SB if possible to provide movement/change of scenery/refresh)*

Great, now that we've made sure we all have a good understanding of what these words mean, let's think about how we can use/apply them at lunch. We're going to be using our senses to help us think of some obvious and some less obvious ways. To start, turn and talk to a partner about what we can reduce (use or do less) at lunch.

Students share out, teacher scribes on the chart on SB (typing or writing with marker)

- Anticipated responses: waste less food, (possibly use fewer dishes, napkins, cutlery too but we can save that for the next R)

Ask students to turn back to their partners to brainstorm **how** we can reduce the amount of food wasted at lunch.

- Anticipated responses: ask for smaller portions, eat things you can put back last (fruit, yogurt), eat everything before getting seconds, save chatting for after you finish eating so you don't run out of time, etc

Students share out, teacher scribes on the chart on SB (typing or writing with marker)

Wonderful thinking, now before we move onto the next part of Reduce, how does wasting less food help or benefit the community? (pose to the group this time)

Students share out, teacher scribes onto **Lesson 1 (3 R's definitions) chart** on SB (typing or writing with marker)

- Anticipated responses: less waste means less garbage/compost for the kitchen and maintenance staff to carry/deal with, less waste is better for the planet which helps people at Trevor and everywhere (possibly less waste will help Ms. B know to order less food for future meals which can save the school money)

Now let's think about it a little differently, turn and talk to a partner about what else we can reduce at lunch but this time focus on what we can hear. (Guide students as needed)

Students share out, teacher scribes on chart on SB (typing or writing with marker)

- Anticipated responses: noise (possibly rude/inappropriate talk)

	Ask students to turn back to their partners to brainstorm **how** we can reduce the amount of noise at lunch. ● Anticipated responses: talk at a regular volume, talk to people sitting next to you, talk less/eat more (possibly listen as much as you talk, if not more) Students share out, teacher scribes onto chart on SB (typing or writing with marker) ***Before we move onto the next R, how does reducing noise at lunch help or benefit the community?*** Students share out, teacher scribes on the chart on SB (typing or writing with marker) ● Anticipated responses: less noise can feel relaxing/more pleasant, it's easier to have conversations, when you can hear people better you have less misunderstandings, you can hear important info from teachers better like fire drills which keeps us safe. **Now that we've done one whole R together, the next two will go a little faster and we'll work a little more as a whole group instead of chatting with partners as much. To kick off the next R,** reuse**, let's share some ideas about what we can reuse at lunch.** Students share out, teacher scribes on the chart on SB (typing or writing with marker) ● Anticipated responses: dishes, cutlery, napkins Ask students to think about **how** we can reuse these items at lunch. ● Anticipated responses: lick or wipe food off a spoon etc to reuse it in a different food without affecting the flavor, remember not to throw away dishes before you're sure you're full/done drinking, use all parts/sides of a napkin/don't ball it up to start, use one dish at a time (possibly ask Mr. Wilson/Ms. Lanzi to buy reusable dishes etc) Students share out, teacher scribes onto chart on SB (typing or writing with marker) ***Great and how does reusing dishes, cutlery and/or napkins at lunch help or benefit the community?*** Students share out, teacher scribes on the chart on SB (typing or writing with marker) ● Anticipated responses: reusing dishes, cutlery and/or napkins means less trash/recycling for the kitchen and maintenance staff to carry/deal with, reusing these items is better for the planet which helps people at Trevor and everywhere (possibly will help Ms. B know to order

less of these supplies which helps save money and reduces the amount of these items that are made)

Just like earlier, let's think about it a little differently, what else we can reuse at lunch but this time focus on <u>what</u> we can hear. (*This may be more challenging/abstract for children, guide as needed, can role play with a volunteer to model and also help shake things up a bit)*

Students share out, teacher scribes on the chart on SB (typing or writing with marker)

- <u>Anticipated responses:</u> please and thank you

Ask students to brainstorm **how** we can make sure we reuse these important words at lunch

- <u>Anticipated responses:</u> practice, remind each other, accept reminders from teachers

Students share out, teacher scribes onto chart on SB (typing or writing with marker)

Before we move onto the next R, how does reusing please and thank you at lunch help or benefit the community?

Students share out, teacher scribes on the chart on SB (typing or writing with marker)

- <u>Anticipated responses:</u> makes people feel appreciated, respected, good, when people feel good they are nicer to others.

Students share out, teacher scribes onto chart on SB (typing or writing with marker)

Great work so far! For the last R, recycle, and to hear what we'll do afterwards let's head back to seats *(countdown from 10 to speed this transition in a fun way).* ***Let's bring it on home with ideas about <u>what</u> we can recycle at lunch."***

Students share out, teacher scribes on the chart on SB (typing or writing with marker)

- <u>Anticipated responses:</u> dishes, cutlery, napkins, yogurt containers, cereal containers, chocolate milk cartons (possibly food if they understand composting, if so add, if not, will be addressed anyway in the next lesson that focuses on composting)

Ask students to think about **how** we can recycle these items at lunch.

- <u>Anticipated responses:</u> sort carefully (possibly clean out)

Students share out, teacher scribes onto chart on SB (typing or writing with marker)

	Great and how does recycling items at lunch help or benefit the community?"(pose to the group) Students share out, teacher scribes on the chart on SB (typing or writing with marker) ● Anticipated responses: Recycling these items keeps them out of the garbage which is better for the planet which helps people at Trevor and everywhere.
	End: *5 minutes* ● Solicit most interesting/surprising/favorite thing we shared/learned, share out a few ● Ask how we can share this valuable information about using the 3 R's at lunch and how it can benefit our community with the whole school since everyone eats lunch? (posters and/or PSA) ● Class votes for poster color choice ● Class raises hands to show who would like a poster template with lines and an example of spelling/info etc vs a poster template with writing on it to decorate (teacher will prep accordingly for later in the day/week and then post in cafeteria or classrooms depending on where kids eat now)
Assessment of Objectives	● Participation/thoughts shared in discussion ● Ideas generated in Turn and Talk/brainstorm ● Ability to transfer understandings to subsequent lessons
Differentiation	● Peer/group discussions help support understanding ● Discussion/brainstorm supports auditory learners ● Visual learners supported by chart, scribed/projected information ● Give option with writing already on poster, kids can choose to color this instead of doing the letter writing themselves to create accessibility for students who struggle with visual tracking, attention/pacing, spelling/mechanics ● Give option with lines on poster paper and example to support spatial understanding, spelling, uppercase etc. ● Children work in partnerships (unless really against this) for peer support and to further develop social relationships/sense of community ● Can be broken over multiple periods/continued as part of Morning Work depending on the size and needs of the group
Materials	● Smartboard ● **Lesson 1 (3 R's definitions) chart** ● 2 or 3 colors of construction paper (for class to vote on as poster choice)

Lesson Two *(September, 30-35 minutes)*	
Objective(s)	• Students will be able to identify recyclable items by exploring their immediate environment/the LS at large • Students will understand how some common school items can be broken down (change in matter from solid to liquid to solid again) by recycling crayons • Students will recognize connections to greater communities of city/state/country etc by learning about Crayola Colorcycle (if operating) and how to lead Trevor's participation
Cross-Curricular Connections	• Initial SS unit (Commons/Community) • ELA and Science (vocabulary, states of matter) • SEL (collaboration/community service/shared responsibility and outcomes)
Procedure	***Beginning:*** *5 minutes (in seats)* • Review recycling definition ***We've been talking about the 3 R's (reduce, reuse, recycle) a lot and in 3rd grade, as you'll see for yourselves, we do a lot of work to understand the environment, how to help it and how to teach our community members how to help. We started this last time when you created the posters for how to apply or use the three R's at eating times in school.***
	Middle: *20 minutes* ***Today we'll be looking for some recycling we already do and then exploring some new things we could recycle. Do you know if there is anything our school recycles already?*** Students share out, teacher scribes onto **Lesson 2 (recycling/matter) chart** on SB (typing or writing with marker) • Anticipated responses: paper, cardboard, maybe plastic? ***Great, now you're going to turn and talk with a partner about what items you think we use a lot that could be recycled, just to make sure we understand the directions, would it make sense if I suggested chairs? They are made of wood which is recyclable, right? What do you think and why?*** • Anticipated responses: no, they are too big, we use them a lot but we don't wear them down or need to replace them a lot, etc

Now, can anyone give us an example of one school item that could be recycled and needs to be replaced a lot/gets worn down and/or used up?

- Anticipated responses: pencils, markers, crayons, lunch containers, erasers, etc

Turn and Talk

- Students share out, teacher scribes on the chart on SB (typing or writing with marker)

Guide to include **markers** (if Colorcycle is operating again) and **crayons** as needed

You really are observant, a great quality for scientists and activists, which are two major things that go into being environmentalists! You came up with so many items, we're going to focus on just a few for now but maybe as the year goes on we'll get to tackle more of them. We're going to watch a little video to help us understand how we can recycle the markers the Trevor LS community uses.

(if Colorcycle is operating again) **Colorcycle Site**

Now let's watch one more video to see how we can get a little more hands-on with recycling materials at Trevor! This one is going to show us how to recycle a very common school item: crayons. Before we watch it, do you have any ideas how crayons can be recycled? How can they be broken down, which we know is a key part of the recycling process?

- Anticipated responses: break into little pieces, crush, melt, pound into powder

Interesting ideas, let's see how it works in the video.

Crayon Recycling Video *(6 minutes)*

Let's talk about what's happening in this exciting process and then we'll discuss our recycling plans for Trevor's crayons. Has anyone heard about the states of matter or the different forms something like water can take?

- Anticipated responses for example/share out: no, hard/soft, solid, liquid, vapor/gas

There are three States of Matter that elements or substances/items can take the form of/look like/turn into: solid, liquid and gas. You'll learn even more about this during this year and

definitely in 5th grade and up but to start us off, we're going to look at this chart and think about some familiar substances. (Go back to* Lesson 2 (recycling/matter) chart*)

Let's look at water, something we all know well. If you had to guess, what would you call water when it is in its solid form? Solids tend to be harder and hold their shape so you can touch them and pick them up.

- Anticipated responses for example/share out: ice, snow, hail, sleet

Great, let's see if we know what to call it in its liquid and gas forms.

- Anticipated responses: water, vapor, steam, mist

Teacher acts as scribe, adding to the chart

So sometimes there is a special name for a substance in different states of matter or forms and sometimes there is not, like when water is in its liquid form we just call it water. Similarly, there isn't really a special name for crayon in different states of matter, but we do know that they are made of another substance that can change from one state of matter to another. What state of matter does a crayon fresh out of the box come in? And what state does it change into when we apply heat like in the video we watched?

- Anticipated responses: solid, liquid

Teacher acts as scribe, adding to the chart (solid wax, melted wax)

We'll revisit this chart in future lessons as we continue to explore items/substances in our world to record what states of matter they commonly take.

***End**: 5-10 minutes*

Back to crayons and recycling! Now that we know it's easy to recycle crayons ourselves, do you think 3rd Grade can take on this mission as our first act of community service and environmentalism? (YES!)

How should we let the community know that we'll be collecting their used up/broken crayons?

- Anticipated responses: posters, signs, announcement, video

Why would making more posters be something to avoid, what's the downside?

	● <u>Anticipated responses:</u> wastes paper/markers etc, too many for whole school to know, can't include families ***What could we do to spread this information that wouldn't use any classroom art supplies AND could be shared with everyone's families?*** ● <u>Anticipated responses:</u> videos, email ***Great! For now, we're going to work as a class and craft an email to share with both the in-school community and our families at home. There will be future projects or missions in 3rd grade for which you will have the option to create your own email or video so don't fret if that is something you are hoping for!.*** Solicit what info to include from students, guiding as needed by having them focus on the 5W's (who, what, where, when, why) and how. Share with the class that we'll decorate empty tissue containers from our class to add a layer of reducing/reusing to our recycling project. Teacher shares with the school community and class families, letting the students know as it goes out. ***Follow-up activities to pop in wherever there is a few minutes here and there, divided among students to include all of them over time:** -tissue box decorating -culling broken/small crayons from our class -delivering crayon collection boxes -retrieving crayons from participating classrooms on assembly days (1x/mo).
Assessment of Objectives	● Participation/thoughts shared in discussion ● Ideas generated in Turn and Talk/brainstorm ● Ability to transfer understandings to subsequent lessons ● Information included in email
Differentiation	● Peer/group discussions help support understanding ● Discussion/brainstorm supports auditory learners ● Visual learners supported by chart, scribed/projected information

	• Options for participation (decorating receptacles, culling crayons, delivering boxes etc) provide accessibility to children who might be introverted/extroverted and/or and/or • Group created email provides support for children with weak verbal/written skills, and greater access to children who struggle with fine motor and/or organizational/spatial issues
Materials	• Smartboard • **Lesson 2 (recycling/matter) chart** • **Crayon Recycling Video** **Colorcycle Site**

Lesson Three *(September, 35-45 minutes,* ***preferably done on a Monday)***	
Objective(s)	• Students will develop a deeper understanding of what recycling means and how it works by conducting experiments. • Students will be able to apply the scientific method by learning the steps/process via cut/paste sorting.
Cross-Curricular Connections	• Initial SS unit (Commons/Community) • ELA (vocabulary) • Science (scientific method)
Procedure	***Beginning:*** *10 minutes (in seats)* • Review definitions of reduce, reuse and recycling (transforming materials into something new) with a focus on how each R functions • Write each on the board *Examples:* *Reduce:* Use/buy/make less *Reuse:* Find a new purpose or way to use an item *Recycle*: (guide students beyond "the blue bin" by asking what happens to items after they go in that bin) Breaking down items made from materials like plastic, paper and metal into small (and sometimes liquid) parts to transform them into a new item ***"Raise your hand if you have heard the word compost or composting before? It's fine if you have and it's fine if you haven't. Does anyone have an idea about what composting means or what it involves?"*** Students share out, teacher scribes onto SB (typing or writing with marker) • Anticipated responses: it's where you put leaves, it's where you put food scraps, it mixes food/leaves together to make dirt, it makes soil, it's where soil comes from Guide students as needed/write and illustrate on board (can draw freehand: leaf/apple→soil). • **Definition:** Composting is the process of turning natural materials into part of healthy soil

	"Interesting, so now thinking about our definition of recycling and what we understand about composting, do you think composting is a kind of recycling? Why or why not?" ● Anticipated responses: *YES: it transforms things like an apple core into something new: soil, it makes stuff into new things, it helps keeps things out of the trash *NO: recycling is for things like plastic and paper, recycling is for unnatural stuff, you can't put it in the blue bin. No matter the response, suggest using the definition of recycling on the board to test or check whether or not composting as we now understand it matches it.
	Middle: *20 minutes* ***"Now that we understand a little bit more about what composting is, what kinds of things do you think we can/cannot compost? What might "work" or break down in compost and what might not?"*** *Guide students to focus on items, versus materials, and solicit the reasoning behind their choices to help scaffold their understanding as well as that of less sure students. Students share out, teacher scribes onto SB **Compost Materials Chart** (typing or writing with marker) ● Anticipated responses:*CAN: paper, apple core, banana peel, leaves, plastic, cheese, eggs, etc *CANNOT: paper, plastic, glass, meat, cheese etc ***"Great thinking, you came up with so many items for both columns! The next step is to see if our ideas about what will and won't work in compost are true. Does anyone know how we can do that as scientists?*** ● Anticipated responses: experiment, test, observe ***"Wonderful! Before we begin experimenting, we're going to learn about the process or steps involved in running experiments as scientists, which is called the scientific method. You're going to get a list of the steps involved in the scientific method but they'll be out of order. Your job is to cut out the steps and then arrange them in the right order. Once you think you have it, raise your hand. When most people have finished, we'll pause and go over it together to see what the order is***

	for sure and understand a bit more about the reasons behind the order of steps within the scientific method. *(if possible, do in partnerships)* ● Intro Scientific Method ● Students work in pairs (if possible, otherwise solo) to identify/ understand the order and purpose of each step, using this **Cut/paste Scientific Method practice** ● Share out order as a group, kids glue down (can be finished later/as morning work if short on time)
	End*: 5 minutes* ***Great work today, as we end, let's check in about why understanding/using the scientific method is something we're learning about. First, why do you think scientists use this process or method?*** ● Anticipated responses: to see if things are true/false, to have a standard way of doing things so each person's experiment will show the correct/true result, to organize scientist's thinking, to remind us what to do when ***As third grade scientists you'll get to practice using the scientific method we learned about today to explore the questions we considered about composting earlier in this lesson, next time.***
Assessment of Objectives	● Participation/thoughts shared in discussion ● Ability to put steps of scientific method in logical order ● Ability to begin utilizing scientific method/quality of suggestions for group practice ● Ability to transfer understandings to subsequent lessons
Differentiation	● Peer/group discussions help support understanding ● Children work in partnerships (if possible/unless really against this) for peer support and to further develop social relationships/sense of community
Materials	● Smartboard ● **Compost Materials Chart** ● **Cut/paste Scientific Method practice**

Lesson Four *(October, 35-45 minutes,* ***preferably done on a Monday****)*	
Objective(s)	• Students will develop a deeper understanding of what recycling, specifically composting, means and how it works by conducting experiments. • Students will be able to apply/reinforce their understanding of the scientific method by performing a group experiment.
Cross-Curricular Connections	• ELA (vocabulary) • Science (scientific method)
Procedure	***Beginning:*** *10 minutes (in seats)* • Review recycling definition and whether or not composting is a kind of recycling/how we know by soliciting information from students • Repeat this process for the scientific method, what are the steps, what is used for, why is there a prescribed process or method? ***"Great! Now what do you think we'll be trying to find out with our first group experiment?"*** (Guide students as needed back to the previous lesson re what does/doesn't work in compost depending on how long in between lessons.)
	Middle: *30 minutes* ***"To begin getting ready for our experiment, let's look back at the chart from our last lesson where we listed the items that we think will and won't work or break down in compost."*** *Guide students to focus on items, versus materials, and solicit the reasoning behind their choices to help scaffold their understanding as well as that of less sure students. Teacher projects **Compost Materials Chart** on SB ***"Looking at these items, let's pick two from each column and try to have those items be made of a different material to help make sure that our experiment gives us a lot of information.*** • Anticipated responses: paper, orange peel/apple core, glass, plastic, wood (guide students to orange peel, paper, glass and plastic as needed)

Now that we have the items/materials we'll use we can get started. Because this is the first time we're running an experiment this year we'll work our way through each step in the scientific method together and you'll be able to fill in your lab sheet as we go. To help make sure nobody gets lost/feels rushed, I'll write all the info on the board as well so you'll have a resource for spelling, uppercase etc as well as a way to support your memory and pace.

- Preview the lab sheet on the board/explain formats (dotted/full lines WR rules)
- Distribute the **Lab sheet group practice/long term experiment (compost)**
- Guide students through each step/solicit info from them

***Title*: What Works in Compost**
***Question*: Can some or all of these materials be composted?**

For the next part, think about these four items: paper, plastic, orange peel and glass. Which of these items do you think will break down over time and become part of the compost and why?
(Solicit a few examples and/or model thinking to support students understanding, explain there is no right or wrong, remind them about the definition of hypothesis)

- Write examples on the board as options for students who feel stuck or nervous/unsure.
- Check hypotheses as students write them to make sure everyone is on the right page before moving on.

***Hypothesis:* I think. . . because . . .**

Does anyone have an idea of how we can test to see which of these four materials will break down over time and become part of the compost?
*Guide as needed to putting each item in compost to see if they incorporate over time.

Great, now we have to consider the other elements or things involved in this experiment, since we're using compost and the four items we chose, what do we need to hold them?

- Anticipated responses: container, jar, tub

*Guide the discussion of types of containers as needed (size, opacity, uniformity)

You guys made a great point about having the containers being the same for each item, what else might need to be the same to make sure our experiment has reliable results that aren't affected by size or shape so as to give us inaccurate information?

- Anticipated responses: amount of compost in each jar needs to be the same, general shape, size and thickness of each items needs to be as similar as possible

Why does the amount of compost in each jar matter for our experiment?

- Anticipated responses: different amounts could cause different things to happen to each item

What about the items we're putting in each jar, what do we need to consider when it comes to their sizes and why?

- Anticipated responses: need to be small pieces because that's part of all recycling processes, should be small/thin to breakdown faster, should be about the same size or "not fair"

*Guide students as needed by holding up the less malleable items in question such as the plastic and glass which teacher will need to have procured beforehand, seeking help from STEAM, maintenance, shop or maker space colleagues is strongly recommended!

Now we have the containers, the items and the uniformity issues all worked out, let's write down the steps of our experiment as we go. Once again, I'll put them on the board to provide a resource for spelling, uppercase and your memory/pace.

- Teacher produces 4 glass, gallon sized, lidded jars and decides with students how many handfuls of compost to add to each (teacher/children record on board/lab sheet respectively)

- Teacher places relatively small bits of plastic, orange peel, glass and paper respectively into jars, adjusting size, shape and thickness of paper and orange peel as necessary. (teacher/children record on board/lab sheet respectively)
- Solicit what's next (close lids)
- Wait and observe

****Experiment:***
Put even amounts of compost in four big glass jars
Add a similar sized piece of paper, glass, orange peel and plastic to each respective jar
Cover in each item compost
Seal jar
Place in a row on the windowsill
Watch what happens

So now we'll leave our jars and record our first set of observations at the end of this week and then again next week and see what happens! Some experiments are long term, meaning that they happen over a longer time and others give us information to record and analyze right away. We'll do short and long term experiments during the school year so you'll experience both.

	End: *5 minutes* ***Great work today, as we end, let's check in about what we're doing. Why are we doing these experiments?*** ● Anticipated responses: so we can see what kinds of things can be composted/recycled this way, to help the Earth by recycling with compost ***Why do people need to know what can be composted and what can't be?*** ● Anticipated responses: because it won't work with the wrong stuff, because composting is recycling and it's like knowing what to put/not put in the blue bin **Follow-up when 5-10 minutes is available:** ● Students to complete the observations (1x/wk for two weeks) in pairs, highlight interesting/apt adjectives, scaffold as needed ● Once all students have completed observations, work as a group to complete the remaining elements of the lab sheet as needed ● Solicit a few responses from student Analyze sections to scaffold other children (write on board) Anticipated responses: *Hypothesis was correct because the glass and plastic did not change/start to break down *Hypothesis was incorrect because I thought the paper would not start to change in the compost *Hypothesis was correct because the paper and/or orange peel started to change/break down *Save lab sheets for the next lesson in case a lot of time has passed and students need to refresh their memories of the experiment process, purpose and results.
Assessment of Objectives	● Participation/thoughts shared in discussion ● Ability to recall steps in the scientific method ● Ability to begin utilizing scientific method/quality of suggestions for group practice ● Ability to transfer understandings to subsequent lessons
Differentiation	● Peer/group discussions help support understanding ● Children work in partnerships (if possible/unless really against this) for peer support and to further develop social relationships/sense of community ● Those with executive function struggles can benefit from the concise and structured format of the directions

	• Completing the steps (and reviewing their meanings) in the scientific process as a group helps prepare students with executive functioning, anxiety, pacing, language and attention issues, begin work more promptly and stay on task with greater confidence/accuracy
Materials	• Smartboard • **Compost Materials Chart** • **Lab sheet group practice/long term experiment (compost)**

Lesson Five *(October, 45 minutes)*	
Objective(s)	• Students will understand how compost works by exploring and describing the components as well as the process. • Students will recognize the benefits of finished compost by examining what happens to compostable items that are not composted.
Cross-Curricular Connections	• ELA (vocabulary) • Science (scientific method, bacteria/decomposers, cycles)
Procedure	***Beginning:*** *10 minutes (in seats)* • Review recent compost experiment. ***Based on what happened in our first long-term experiment, it seems like 2 kinds of things add to compost or turn into compost, what are those things?****(orange peels and paper)****.*** ***Let's make two categories and see if we can make some logical connections about what else might be in the orange peel group and what else might be in the paper group.*** **Compost Categories** • Guide students as needed: "What kinds of things are like orange peels? Well, what is an orange (fruit) so maybe fruit in general is what we can add to the list. What else is like orange peels and fruit in general, maybe other things that grow?" • Same when leading with paper: "What other things are like recess paper? Maybe they have a similar shape or color, maybe other kinds of paper? Or maybe it helps to think about what paper is made of. . . " • Project this image to help them get all the items by looking closely **Compost pics** • Add more items after pic viewing • Teacher cheat sheet: ***Green Side:** fruit, veggies, flowers, herbs, seeds, plants (all raw, whole or scraps/peels), coffee grounds, tea bags, nut\shells ***Brown Side**: wood chips, shredded paper, shredded newspaper, shredded cardboard and shredded dead leaves

Middle: *30 minutes*

Now that we've started adding to these two categories, let's watch a little video to learn more about composting and then we'll do a fun little cut/paste activity.

- **How to Make Compost You Tube Video** *(6ish minutes)*

What happens to compostable items that get thrown in the trash instead? *(they don't turn into soil, they rot, they smell bad, they go to landfills)*

What does compost get added to/become part of? *(soil)*

Why do you think healthy soil is important? *(grows plants for us to eat, wear, build with and produce oxygen)*

You're about to get a sheet with labels, similar to the scientific method cut/paste sheet you worked with recently, and a diagram of the compost cycle. With a partner, or alone if you prefer, you're going to use what you know about the compost cycle and the helpful pictures on the diagram to match each label to each part of the cycle. You'll cut up the labels sheet and then lay them out into the order that you think makes sense based on what we've learned so far about compost. Once you think you have the correct order, raise your hand for me to come. Once your order has been approved, you can glue the labels onto your compost cycle page.

- **Compost Cycle Diagram/Labels**

So now we know what kinds of things can be composted and how the compost cycle works! Let's now think about what compost becomes or gets added to, does anyone have an idea?

- Anticipated responses: dirt, soil, the ground, fertilizer

Great, next time we'll take a closer look at soil and think about where compost would live in the soil.

End: *5 minutes*

So to recap, what kinds of things can go into compost? *(raw food scraps, paper, cardboard)*
What are the names of the two compostable item categories? *(green, brown)*
What happens to compostable items that get thrown in the trash instead? *(they don't turn into soil, they rot, they smell bad, they go to landfills)*
What does compost get added to/become part of? *(soil)*

	Why do you think healthy soil is important? *(grows plants for us to eat, wear, build with and produce oxygen)* ***What questions (if any) do you still have about compost?***
Assessment of Objectives	• Participation/thoughts shared in discussion • Ideas generated in Turn and Talk/brainstorm • Ability to transfer understandings to subsequent lessons
Differentiation	• Peer/group discussions help support understanding • Children work in partnerships (unless really against this) for peer support and to further develop social relationships/sense of community • Those with executive function struggles can benefit from the concise and structured format of the directions • Previewing the diagram and labels as a group helps prepare students with executive functioning, anxiety, pacing, language and attention issues, begin work more promptly and with greater confidence/accuracy
Materials	• Smartboard • **Compost Categories** • **Compost pics** • **How to Make Compost You Tube Video** • **Compost Cycle Diagram/Labels** (handouts)

Lesson Six *(October, 35-45 minutes)*	
Objective(s)	• Students will be able to demonstrate their understanding of the process and purpose of composting by creating informative PSA's (video or email version) that educate the community. • Students will be able to contribute to the school community through the service project of recycling crayons and composting.
Cross-Curricular Connections	• Initial SS unit (Commons/Community) • ELA (vocabulary, writing complete sentences, phrasing, scripting) • Science (review/synthesis of compost cycle, soil, recycling, change in matter) • SEL (community service learning) • Technology (videography, iPad/Chromebook usage, typing, emailing) • Art (visual representation of compost cycle, visual aids)
Procedure	***Beginning:*** *5-10 minutes (in seats)* ***We've been doing a lot of thinking and exploring around composting and how to help our school community take action to become a little "greener" or more environmentally friendly. Does anyone have some ideas about how we can share some of this learning, specifically that we'll be composting with the community?*** *(posters, PSA videos/emails)* • Anticipated responses: *posters *videos *emails ***Posters are often something we're used to making and/or seeing around school. What are some reasons why using technology like video-making and/or emailing and/or google slides etc are stronger options for this project? Think about poster making materials, how technology is used in the last few years since Covid, etc. Turn and talk with a partner for a minute and then we'll share out.*** • Anticipated responses:

	*more kids are using email/online school resources *posters use paper and don't "live" very long and videos/emails/slides etc are more permanent *videos/emails/slides etc have more "space" for information *videos and slides with pictures can help people who can't read so well get the info *we can share tech based PSA's with our families too *less time consuming than making enough posters to cover the school *tech based PSA's ensure more people get the message *kids like using tech *kids get to practice writing, scripting, videography and tech skills this way vs only small amounts of writing/coloring. ***Wonderful thinking! These reasons are so important, do you think we should include them in our PSA's in case people are wondering why we didn't just make posters?*** *(YES!)*
	Middle: *25-30 minutes* ***We have a lot of information to share and some things to consider as far as getting the community involved, what are some things the community needs to know to get our composting program going?*** ● Guide students as needed ***What questions might people have about how they participate and/or how this all works?*** ***What needs to happen for us to collect these items from other classrooms?*** ● Anticipated responses: *What items are we collecting for composting? *How do they get the food scraps, paper to us? *Where/in what do they collect these items? *How often do we collect them? *What do we do with these items/what happens to them/what do they become? ***Great, now let's answer some of these questions together which will be the first step in our planning sheets. I'll record the information on this "sloppy copy" outline by typing it as we go and***

so you can use it for the next step which you'll do more independently. I'll explain more about that in a minute but now let's focus on PSA Part 1: Basic Info.

- Anticipated responses:

*What items are we collecting for composting? Common snack scraps: banana peels, carrots, orange peels, apple cores, and non glossy paper (newsprint used for recess paper and printer paper used for assignments/classroom materials)

*How do they get the food scraps, paper to us? New classroom job, we collect

*Where/in what do they collect these items? Repurpose existing containers, book bins etc for each class

*How often do we collect them? Debate daily versus 2x/wkly, store in our room in containers

*What do we do with these items/what happens to them/what do they become? Compost, keep them out of landfills, turn them into essentially soil, save the Earth

Great, I'll put this back up on the board in a few minutes and also print it later so you can use it as you continue to work on these PSA's in unfinished work periods. Now we're ready for the next step in the planning process and you get to make some choices about whether you'd like to make a short informational video or create an informational email/online posting. Depending on what you choose you'll get a slightly different planner. We're going to look at each option now so you can make an informed choice. *(teacher projects all three options, goes over them briefly)*

Script Planner (online version)

Script Planner (printer version)

Visual Aid Planner (Basic info for collection container)

Visual Aid Planner (explaining compost cycle)

Compost Collector's Rotation Chart

Job Assignment Chart

- *Once students have made their element/format (where applicable) choices, teacher can create groups by:*

*Polling students about their preferences and assigning accordingly

	*Assign heterogeneous groups to collaborate on the same element to provide peer scaffolding if consensus cannot be reached *Team size will vary depending on class size, but the teacher ensures that at least one student creates the rotation for collection, that for each class participating in the composting service there is an equal number of students to create collection bin labels and also that this same number of different students create compost cycle signs. The other students will create and/or type the script for the video and those who are interested in being on camera will have that option. Depending on class size students will fill more than one role. If time allows, children begin their PSA planners, if not/in order to finish, students can use discretionary periods etc to complete. ***Share finished PSA's with parents and LS community via email and the lobby computer/announcement.***
	End**: 5 minutes* ***We're off to a wonderful start and will have plenty of time in the coming days to finish planning and then do our "fancy copies" by either making the videos or emails/postings and sharing the not only with the people here at school but also with your families so they can see what you have been working so hard on and get a chance to maybe learn something new form you guys too! ***Once we have some paper and/or food scraps collected, we'll begin composting!***
Assessment of Objectives	• Peer/group discussions help support understanding • Reiterating/verbalizing information from the past lessons to support working • Children work in partnerships (unless really against this) for peer support and to further develop social relationships/sense of community
Differentiation	• Peer/group discussions help support understanding • Children work in partnerships (unless really against this) for peer support and to further develop social relationships/sense of community • Choice of video, email, online, printed versions to support a variety of learning styles and needs (visual, fine motor, verbal, encoding, stamina/attention) • Scaffolded planners to support executive functioning skills
Materials	• Smartboard • ***PSA Part 1: Basic Info***

	• **PSA Part 2: Video Planner (online version)** • **PSA Part 2: Video Planner (printer version)** • **PSA Part 2: Script Planner (online version)** • **PSA Part 2: Script Planner (printer version)** • **Visual Aid Planner (Basic Info)** • **Visual Aid Planner (explaining compost cycle)** • **Compost Collector's Rotation Chart**

Lesson Seven *(November 20-25 minutes)*	
Objective(s)	• Students will be able to identify soil layers and utilize soil specific vocabulary by labeling a simple diagram, informed by a short nonfiction piece. • Students will be able to recognize where compost "lives" within the layers of soil by learning about what they are composed of.
Cross-Curricular Connections	• Reading (decoding, literal comprehension, referring back to texts) • Science (vocabulary: weathered rock, organic matter, humus, topsoil, subsoil, parent material, bedrock)
Procedure	***Beginning:*** *5 minutes (in seats)* • Review: ***What kinds of things can go into compost?*** *(raw food scraps, paper, cardboard)* ***What are the names of the two compostable item categories?*** *(green, brown)* ***Why does compost get added to/become part of?*** *(soil)* ***Compost is something that is added to soil so it's technically both a soil amendment or additive and also part of what healthy soil is.***
	Middle: *15 minutes* ***Is it important to have healthy soil? Why?*** • Anticipated responses: Soil with lots of nutrients grows lots of healthy plants for us and other creatures to eat , healthy plants help to keep our air clean by breathing oxygen out into the environment while also breathing in CO2 or carbon dioxide. ***Because we're learning about making compost which is so important for soil, we're going to take a little walk down "soil lane" and learn some of the basics about soil and maybe get some more ideas about why it's important to have healthy soil.*** • Pass out **Understanding Soil** (kids can complete alone or in partnerships)

	End**: 5 minutes* ***Do we have any more ideas about why it is important to have healthy soil? ● Anticipated responses: Soil with lots of nutrients grows lots of healthy plants for us and other creatures to eat , healthy plants help to keep our air clean by breathing oxygen out into the environment while also breathing in CO2 or carbon dioxide. ***Where will the compost we make go in the soil?*** ● Anticipated responses: in the top layer, in the humus layer, in the second layer, the topsoil ***Why do you think the compost will be in those layers?*** ● Anticipated responses: we'll add it to the top, it's where plant roots are, those layers have the most nutrients
Assessment of Objectives	● Participation/thoughts shared in discussion ● Ability to connect information from prior lesson ● Synthesis of compost, soil, plants, air, life ● Ability to transfer understandings to subsequent lessons
Differentiation	● Peer/group discussions help support understanding ● Reiterating/verbalizing information from the passages can help support struggling readers and/or those with attention issues ● Children work in partnerships (unless really against this) for peer support and to further develop social relationships/sense of community
Materials	● Smartboard ● **Understanding Soil**

<table>
<tr><th colspan="2">Lesson Eight (November 20-25 minutes)</th></tr>
<tr><td>Objective(s)</td><td>Students will be able to define the 3R’s and understand why we’re adding a fourth R: repair by reviewing the definitions we’ve looked at previously and considering the relationship between the words reduce, reuse, repair and recycle.
Students will understand what kinds of skills vitally inform repair.</td></tr>
<tr><td>Cross-Curricular Connections</td><td>ELA (decoding, literal comprehension, prefixes/spelling)
Science (vocabulary: reduce, reuse, repair, recycle)</td></tr>
<tr><td rowspan="2">Procedure</td><td><u>Beginning</u>: 10 minutes (in seats)
<u>Review:</u>
Who can think back to our discussions from the past few months and remind us what each of the 3R’s means? (reduce, reuse, recycle)

Today we’re going to add a fourth R, repair to this group of words. What do you all think repair means?
<u>Anticipated responses:</u> fix, mend, make better, make like new, students might also give examples or use the names for specific repairs like sewing
Great, now why do you think we’re adding the word repair? What does repair have in common with the other 3R’s? It can be something in the words themselves or something in their meanings.
<u>Anticipated responses:</u> they all start with -re, they have the same prefix, they all help the environment, without repair it’s hard to reduce and reuse as much</td></tr>
<tr><td><u>Middle:</u> 10 minutes
Now, I’m going to give you the What’s This Word? sheet to record these definitions as well as what you think these words have in common. For the latter you can use some of the ideas we just shared as a group or you can write something different you noticed. I’ve written some of those ideas as well as the definitions on the board so you have a spelling resource as well.

Remember the next questions on your What’s This Word? will ask you to write the common prefix if one exists and what ideas you have for the meaning of that prefix based on your understanding</td></tr>
</table>

	of the words in the group. After everyone has finished, we'll share your prefix definition ideas and then look it up. (pass out 4R's What's This Word? worksheet, students will have had prior experience with this format with different groups of words that have a connection either visually, thematically, or due to their meaning, etc. Each word group relates to something we're studying at the time. Prior word groups have been: Commons, Community, Common, Communicate, and Prediction, Estimate, Hypothesis. The word group that will follow the 4R's will be Action, Actionable, Activism, Activist.) Once everyone is ready, solicit responses for what the prefix is and what its possible meanings are, then reveal the actual meaning *(again*) and have students complete the sheet.
	End**: 5 minutes* ***Great work! In our next lesson we'll focus on our newest R: repair. To plant some seeds in our minds before that, can anyone think of specific kinds of repair, repair skills, things we do to repair items? ● Anticipated responses: sew, knit, use hammers and nails, glue, tape, take to a special person
Assessment of Objectives	● Participation/thoughts shared in discussion ● Ability to connect information from prior lesson ● Ability to identify the relationship(s) between the 4R's ● Ability to transfer understandings to subsequent lessons
Differentiation	● Peer/group discussions help support understanding ● Option to use group sourced examples or more unique observations allows immediate access to the activity for all ● Definitions written on the board to provide spelling resource ● Information is taken in via auditory, visual and kinesthetic modes (oral share, written on the board, handwritten by students onto their page) ● Prethinking prior to the follow-up lesson to help prime the pump and create anticipation
Materials	● Smartboard ● What's this Word?

Lesson Nine *(November 30-40 minutes)*	
Objective(s)	• Students will be able to recognize and name specific repair skills/trades. • Students will apply logical thinking skills to identify age appropriate repair skills they can take on/compare and contrast levels of difficulty among them.
Cross-Curricular Connections	• ELA (decoding, literal comprehension, spelling) • Social Studies (vocabulary: repair, darning, seamstress/tailor, carpentry/carpenter, plumbing/plumber, electrician, mechanic, jeweler,)
Procedure	***Beginning:*** *5 minutes (in seats)* • Review: ***Who can remind us of the new R word that we added to reduce, reuse and recycle? And what does it mean?*** *(repair: to fix and make like new again/restore)* ***Why did we add repair to the original 3R's? Why is it important?*** • Anticipated responses: we can reduce more by repairing things and making it possible to reuse them, fixing things means we don't have buy new things to replace them so we use/make less stuff, repairs keep things about of the garbage, repair makes things usable for longer
	Middle: *20 minutes* ***Great so now that we have it clear in our minds, what repair means and why it's such an important part of the 4R's, lets get specific! Just like we've been using specific vocabulary as poet's in our recent writing unit, we need to know and use specific words for the many different kinds of repairs that exist and the name of the professions that apply these skills.*** ***In a moment, I'll pass out a chart that will also be up on our Smartboard so we can add some information to it together and have a spelling resource while we're at it, especially since some of these words might be really unfamiliar or have tricky spellings.*** *(pass our Repair Skills/Trades Chart)* *Teacher guides/supports as needed, especially with technical names and records the information on the chart on the board to serve as a resource. This resource will be saved and made available again later in the day or even the next day should children need more time with it.*

***Some responses in need of support include: darning, jeweler, carpenter, cobbler*

Now that we have some understanding of a few common kinds of repair, some of the tools they require and the names of the jobs that perform them professionally, I want you to do a little more thinking on your own. For the next section of the chart, think about what other items, besides the example piece, might be fixed with each specific repair. To make sure everyone knows what to do, we'll answer the first one or two together.

What other items besides ripped pants could be fixed with sewing skills?

Anticipated responses: shirt with a hole, a skirt that's too long/short, jacket with a tear, etc

What other items could be fixed using carpentry skills?

Anticipated responses: chair, bedframe, wooden door, bird house, bookcase, etc

Now continue working your way across the chart and when you have listed other items that would be helped by each kind of repair, then when everyone is finished we'll look at the final section of the chart together.

(Pause as needed to have a few students share if other children are struggling. If a few students finish early while others have a long way to go, briefly ensure they understand that for the last section they will be rating the instructional difficulty level using a scale of 1-5, where one is the easiest and 5 is the hardest.)

Now let's look at the final section. Think about how hard each skill would be for children about your age to learn in school. Think about what might be too dangerous for kids your age, what strength might be involved, etc. Then use a scale of 1-5 to rate the difficulty level, where 1 would be really easy and 5 would be very hard, maybe impossible.

End: *5-10 minutes*

(Once students have finished, ask a few children to share what they rated the easiest and most difficult/impossible and to explain briefly the reasoning behind their choices)

- Anticipated responses for Level 1/2: sewing because it isn't so dangerous, the tools are easy to get and you don't have to be very big or strong, maybe some people have already started

	learning this at home or camp, darning and jewelry repair (same reasons except for prior knowledge) ● <u>Anticipated responses for Level 4/5:</u> carpentry, locksmithing, cobbler skills since they can be dangerous, require strength and/or such specialized tools and training ***Great reasoning! Now, as some of you may have thought, sewing is in fact a relatively safe and easy skill for children to learn and it does not have special tools that are hard to get or use. In fact I have some here because next time, we'll all be learning some basic sewing skills!*** *(reveal basket with pin cushions, thread, needles, pins etc)* *The follow-up lesson will be assisted by at least two other teachers (specifically Ms. Greenberg who assist me in my Environmental Fashionista Afterschool class, and the reading specialist Ms. Helies who joins our class M/W morning as part of her regular schedule so both teachers are very familiar to the students and also know how to pin, thread and stitch).* *Families/school community will be emailed for donations of unwanted natural fabric (stained shirt, torn sheet, etc) and children will be asked to brainstorm practical/utilitarian small items that we can create using this salvaged fabric.* *In the end students will choose to make either a handkerchief or a bag and understand why these items are particularly useful/replace environmentally problematic items (single-use/disposable bags and/or tissues/tissue boxes).*
Assessment of Objectives	● Participation/thoughts shared in discussion ● Ability to connect information from prior lesson ● Ability to transfer understandings to subsequent lessons ● Ability to reason out what repair skills are appropriate for their age group to learn/employ
Differentiation	● Peer/group discussions help support understanding ● Option to use only group sourced examples or add more unique repair skills/trades allows immediate access to the activity for all ● Written on the board to provide spelling resource ● Information is taken in via auditory, visual and kinesthetic modes (oral share, written on the board, handwritten by students onto their page)

Materials	• Smartboard • Repair Skill/Trades Chart

Reference

crayola.com/colorcycle. (n.d.). Crayola.Com. https://www.crayola.com/colorcycle

SciShowKids. (2021, April 19). *SciShowKids Recycling Old Crayons!* [Video]. YouTube. https://www.youtube.com/watch?v=-Ad0vzBxBzU

Appendix

Lesson 1

The Three R's

	Reduce	Reuse	Recycle
What it means:			

What can we reduce at lunch?	How can we do that?	How does this benefit or help our community?
What can we reuse at lunch?	**How can we do that?**	**How does this benefit or help our community?**
What can we recycle at lunch?	**How can we do that?**	**How does this benefit or help our community?**

Lesson 2

What we recycle	What we could start recycling (common school items)

Item/Element	Solid	Liquid	Gas
Example: **water**			
crayon			

(See Reference List for video and website)

Lesson 3

Compostable Materials

Things we think we **can** put in compost	Things we think we **cannot** put in compost

Observe

(record the results/what happens)

Experiment

(what you do to answer the question)

Analyze

(think about the results/explain how you know your hypothesis was correct or incorrect)

Share your results

(show what you found out to others)

Question

(what you want to know)

Make a hypothesis

(a hypothesis is an educated guess like a prediction in reading or an estimate in math)

Organize the Steps in the Scientific Method

Directions:

1. Read **all** of these directions **before** starting!
2. Read through the steps in the Scientific Method.
3. Lightly number each step in pencil **before** you cut.
4. Cut along the lines.
5. Write your name on the back of each piece as you cut it.
6. Lay them out in the correct order on the page that has numbers.
7. Compare with a neighbor.
8. **Raise your hand** to have it checked by a teacher.
9. Use a glue stick to glue each step down.
10. Be **careful** to keep the order correct!

1

2

3

4

5

6

Lesson 4

Compostable Materials

Things we think we **can** put in compost	Things we think we **cannot** put in compost

Lab Sheet

(Group Practice/Long Term Experiment)

Title of Experiment: . . . . . .

Question:_____

(what you want to know)

Hypothesis:_____

_____

_____

(a hypothesis is an educated guess like a prediction in reading or an estimate in math)

Experiment:

(what you do to answer the question)

- . . . . . .
- . . . . . .
- . . . . . .
- . . . . . .

- .....

Observations:

Week	One
Plastic in Jar	• ..... • ..... • .....
Orange Peel in Jar	• ..... • ..... • .....
Glass in Jar	• ..... • ..... • .....
Paper in Jar	• ..... • ..... • .....

(record the results/what happens)

Observations:

Week	Two

Plastic in Jar	• ..... • ..... • .....
Orange Peel in Jar	• ..... • ..... • .....
Glass in Jar	• ..... • ..... • .....
Paper in Jar	• ..... • ..... • .....

(record the results/what happens)

Analyze:

_____

_____

_____

_____

(think about the results/explain how you know your hypothesis was correct or incorrect)

Share:
(show what you found out to others)

How could we share the information from this experiment? *List your ideas:*

- . . . . . .
- . . . . . .
- . . . . . .
- . . . . . .

Lesson 5

Compost Categories

Category 1	Category 2

Directions:

1. Number the steps in the order that they happen.
2. Get checked by a teacher.
3. Cut out step one **only.**
4. **Glue** step one into place on your Compost Cycle.
5. Repeat with step two **only.**
6. Continue, **one step at a time,** repeating the process.

Put in Composter

(combine brown and green materials)

Compost Helps Plants Grow

(fruits, veggies, herbs, trees, flowers)

Create Natural Scraps

(eating, using paper, reading newspapers, getting packages)

Scraps Break Down

(heat, moisture, air and organisms like bacteria)

People/All Creatures Enjoy Plants

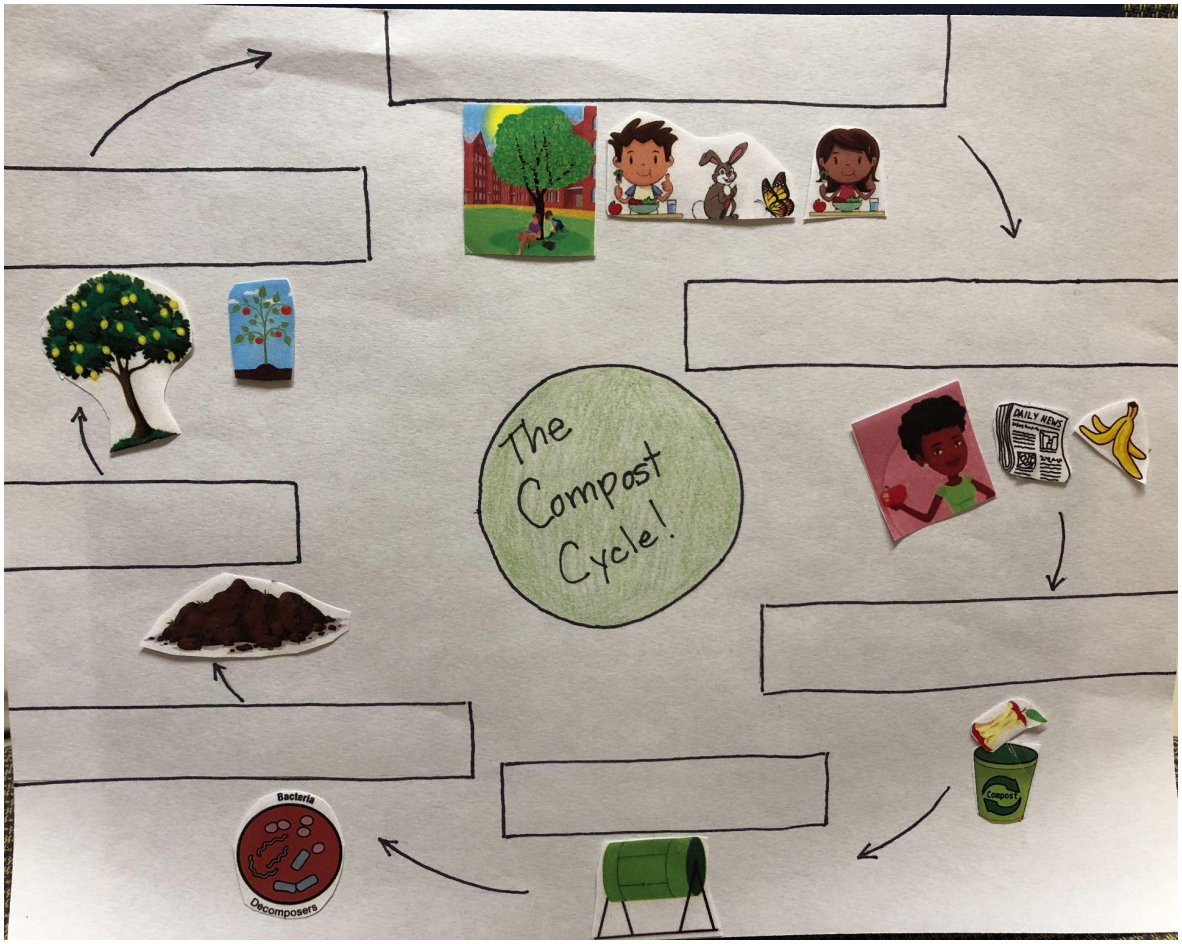
(eating, looking at, sitting in their shade, living in them)

Collect Natural Scraps

(fruit, veggies, plants, leaves, paper, cardboard)

Scraps Become Compost

(super healthy soil)



(change to landscape before printing or use original hardcopy)

Lesson 6

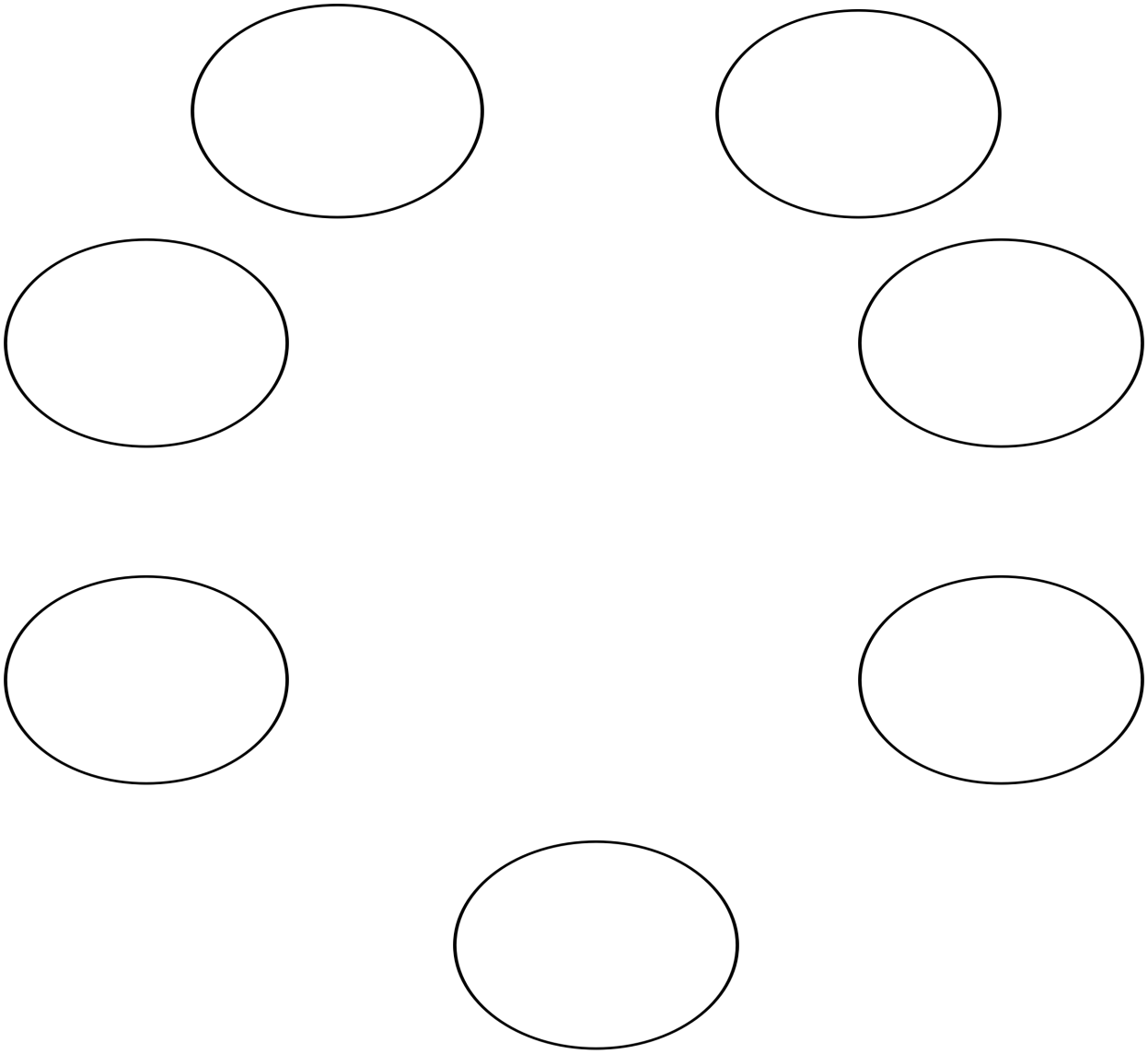
Section	Information to Include	Script:
Beginning	**Explain what we're doing** *giving containers *collecting paper and snack fruit scraps *remove fruit stickers first! *composting them	
Middle	**Explain how to participate** *apple, banana and orange leftovers from snack *paper (non-glossy) *when we'll collect	
End	**Explain why we're doing this** *environment/Earth *greener place *community	

Section	Information to Include	Script:
Beginning	**Explain what we're doing** *giving containers *collecting paper and snack fruit scraps *remove fruit stickers first! *composting them	_____ _____ _____ _____ _____ _____
Middle	**Explain how to participate** *apple, banana and orange leftovers from snack *paper (non-glossy) *when we'll collect	_____ _____ _____ _____ _____ _____ _____
End	**Explain why we're doing this** *environment	_____ _____

	*Earth *greener place *community	_____ _____ _____ _____ _____

3rd Grade Composting-Community Service and Science

What:.	**Where:**. . . . .
. . . . .	**When:**_____
. . . . .	_____
	_____
Why:_____	**Thank you for helping us help the planet!**
_____	
_____	



Collectors Rotation

Week of. . .	Person 1	Person 2	Person 3
Teacher decides with choosing sticks for repeats from this point onwards			

Class List (name spelling resource)

Job	Names				
Script Writers					
Script Typers					
Collection Bin Label Makers					
Compost Cycle Signs Makers					
Video Speakers					
Collection Chart Makers					

Lesson 7

Name:_______________________ **Understanding Soil** Date:_________________

What's in it and why do we need it?

Soil is a mixture of four main ingredients: weathered rock, organic matter, air and water. **Weathered rock** is the name for rocks that have been worn down over time by different kinds of weather including, wind and rain. Weathered rock can be in the form of sand, clay, pebbles or larger rocks. **Organic matter** can be anything that was or is alive, anything from old leaves to dead plants/animals to tiny living things like bacteria. **Air** and **water** are the ingredients that help to break down or "weather" the rocks. They also help the dead plant and animal matter to break down or decay.

We depend on soil to grow **plants that we eat** like wheat, tomatoes or strawberries. Soil also makes it possible to **grow plant fibers** that get spun or woven into fabric that we wear, like cotton or bamboo. Because we have soil, we have plenty of plants and trees to **produce the oxygen** that we breathe. Plants and trees can sometimes be used as building materials for people and are even more often **homes** for animals and insects.

1. List the main ingredients of soil.

. . . .

. . . .

2. Using what you just read and what you understand about soil, describe **at least two benefits** (good things we get) from having healthy soil.

_____

_____

_____

_____

3. What is one thing you know for sure can be added to soil to make it healthier?

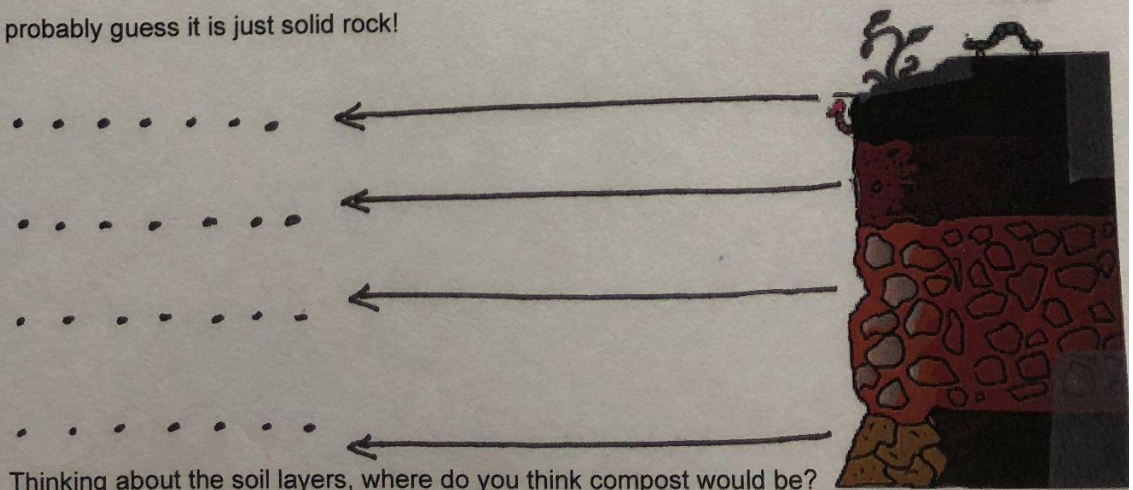
. . . . . .

Name:_____ **Understanding Soil** Date:_____

Directions:

- Read the information and then use it to help you label the diagram below.
- Then answer the question.

Soil covers much of our Earth sort of like a skin. It has many layers and is full of life. **Humus** is the topmost layer of soil and has a lot of living things in it such as moss, fallen leaves, insects and all kinds of plants. This layer is thin and a very rich, dark color. **Topsoil** is the name of the next layer down. It's also a pretty dark color and has lots of nutrients to feed the plant roots that live in this layer. The nutrients come from decaying animals and plants as they recycle naturally in the ground. Underneath is the next layer, called **subsoil**. It has a lot of sand, pebbles and clay that come from larger rocks being worn down over time by wind and rain. It's a lighter color because it doesn't have as much plant/animal material as topsoil and humus. The next layer down is called **parent material**, which is mostly rock and only home to the largest tree roots since it is so deep. The last and bottom layer is known as **bedrock.** As you can probably guess it is just solid rock!



Thinking about the soil layers, where do you think compost would be?

. . . . . .

All About the Layers

Directions:

- Read the information and then use it to help you label the diagram below.
- Then answer the question.

Soil covers much of our Earth sort of like a skin. It has many layers and is full of life. **Humus** is the topmost layer of soil and has a lot of living things in it such as moss, fallen leaves, insects and all kinds of plants. This layer is thin and a very rich, dark color. **Topsoil** is the name of the next layer down. It's also a pretty dark color and has lots of nutrients to feed the plant roots that live in this layer. The nutrients come from decaying animals and plants as they recycle naturally in the ground. Underneath is the next layer, called **subsoil**. It has a lot of sand, pebbles and clay that come from larger rocks being worn down over time by wind and rain. It's a lighter color because it doesn't have as much plant/animal material as topsoil and humus. The next layer down is called **parent material**, which is mostly rock and only home to the largest tree roots since it is so deep. The last and bottom layer is known as **bedrock.** As you can probably guess it is just solid rock!

Thinking about the soil layers, where do you think compost would be?

. . . . . .

Lesson 8

What's This Word?

Directions: Write each word and its definition.

Commons, Common, Communication, Community	
Word	**Definition**
.....	.....
.....	.....
.....	.....
.....	.....

1. **Look at the group of words. What do they have in common?**
   *It can be things you can see in the words and/or the meaning of the words or sometimes what they are all a part of.

_____

_____

2. ***If*** they have the same beginning letters, write them below ***and*** what you think that prefix means.

Prefix: . . . . . What I think it means: . . . . . .

Actual Meaning: . . . . . .

Directions: Write each word and its definition.

Prediction, Estimate, Hypothesis	
Word	**Definition**
.....	.....
.....	.....
.....	.....

1. **Look at the group of words. What do they have in common?**
   *It can be things you can see in the words and/or the meaning of the words or sometimes what they are all a part of.

_____

_____

2. ***If*** they have the same beginning letters, write them below ***and*** what you think that prefix means.

Prefix: . . . . . What I think it means: . . . . . .

Actual Meaning: . . . . . .

Directions: Write each word and its definition.

Reduce, Reuse, Repair, Recycle	
Word	**Definition**
.....	.....
.....	.....
.....	.....
.....	.....

1. **Look at the group of words. What do they have in common?**
   *It can be things you can see in the words and/or the meaning of the words or sometimes what they are all a part of.

_____

_____

2. ***If*** they have the same beginning letters, write them below ***and*** what you think that prefix means.

Prefix: . . . . . What I think it means: . . . . . .

Actual Meaning: . . . . . .

Directions: Write each word and its definition.

Action, Actionable, Activism, Activist	
Word	**Definition**
.....	.....
.....	.....
.....	.....
.....	.....

1. **Look at the group of words. What do they have in common?**
   *It can be things you can see in the words and/or the meaning of the words or sometimes what they are all a part of.

_____

_____

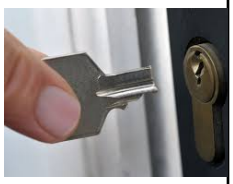
2. ***If*** they have *many of the same* beginning letters, write them below ***and*** what you think that **root** means.

Root: . . . . . What I think it means: . . . . . .

Actual Meaning: . . . . . .

Lesson 9

4R's: Repair (Skills/Trades Chart)

	Ripped pants 	Broken table 	Hole in a sweater 	Jammed apt. lock 	Broken shoe 	Broken watch/ring  
Repair (action/s)						
Repair (tools)						
Repair (profession name)						
Other items this repair would work for are. . . .						
Difficulty level for kids to learn this repair skill *in school*? *(scale 1-5)*						