The Environment and Me: The Unit Design

Planning Template

Theme of Museum Exhibit/Unit:	The Environment and Me	
Grade Level:	Kindergarten	
Lesson Title	Our Amazing Environment	
Standards for Display/Lesson:	K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive. CCSS.ELA-Literacy.W.K.7: Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). CCSS.ELA-Literacy.W.K.2: Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. S.60.2: Engage in collaborative investigations to describe phenomena or to explore cause and effect relationships. S.60.9: Provide examples of how animals depend on plants and other animals for food.	
Content Concepts:	**Simple** 1. The environment is all around us and is a natural part of our daily lives. 2. Bugs are crucial for a healthy and thriving environment. 3. Plants play a large role in our lives.	**Complex** 1. We are all connected to living things in our environment. 2. Each living creature, big or small, impacts our environment.
Essential Questions:	1. Why is learning about our environment vital for our future and others? 2. How can plants and bugs affect our environment?	
New Literacy*	**Activity**	
Introduce with: Digital/Scientific/Critical	Using the SMART Board, we travel to the site *Pest World for Kids* and take the Bug Biology quiz together (tapping into prior knowledge)	

	Epic and search engine tutorial. Being environmentally knowledgeable and stewards of our Earth.
Visual	Photographs of food, animals, different parts of insects, different parts of the plants and flowers, and non-related pictures such as, tires, cans, and cars. (sorting and counting)
Promote understanding by: *Digital*	Students work with the teacher to use the SMART Board to find the documentary "People, Plants, and Pollinators" located on the National Geographic Resource Library website. Students will discover how plants and bugs affect our environment. Students will use Epic to research books on pollination and pollinators. Students will learn how to use the search engine to research more information on how plants and bugs impact our environment.
Visuals	Students will learn about the connection between the food we buy at the store and the importance of insects, as well as the connection between wood and trees. Vocabulary such as: pollinators, pollen, pollination, flowers, stigma, pistol etc... are covered.
Provide application/ higher-level thinking by: *Visual and Critical*	Students create posters to share with another class to showcase why insects and plants are important to our environment.

Strategies for differentiation with the display/lesson:

In a small group, teacher will work with struggling students on the second part of the *Promoting Understanding* section of the lesson. Teacher will also carefully observe and provide support for struggling students as needed in the *Application* activity section of the lesson.

Average students will work as partners to edit each other's posters.

Advanced students will add a compiling sentence to their poster to describe their importance in the *Provide higher-level thinking* section of the lesson. Advanced students will edit each other's work.

Instructional Grouping Strategies:

Ability leveled small groups for both digital sections; to provide intentional questioning and background knowledge.

Flexible grouping for visual activity.

Peers for editing the posters.

Assessment:

Formal and informal observations

Poster work samples.

Exit tickets: Who are pollinators? Can we have a garden without bees? What do plants do for us?

Planning Template

Theme of Museum Exhibit/Unit:	The Environment and Me	
Grade Level:	Kindergarten	
Lesson Title	Reduce Reuse Recycle	
Standards for Display/Lesson:	SS.60.4: Demonstrate awareness that people have a responsibility to take care of the environment through active participation in activities such as recycling. K-ESS3-3 Earth and Human Activity: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. CCSS.Math.Content.K.G.A.2: Correctly name shapes regardless of their orientations or overall size. CCSS.Math.Content.K.OA.A.1: Represent addition and subtraction with objects, fingers, mental images, drawings[1], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations CCSS.Math.Content.K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[1]	
Content Concepts:	**Simple** 1. The Three R's are reduce, reuse, recycle. 2. The Three R's can have a positive impact on our environment. 3. Not everything is recyclable.	**Complex** 1. The items we use daily, the things we buy, and throw away, all impact our environment.

	4. You can create art use recyclables. 5. There are many ways to reuse and reduce.	2. There are small steps we can individually take to positively protect our environment.
Essential Questions:	1. How do humans positively and negatively affect our environment? 2. In what ways can we protect and preserve our environment for future generations to enjoy?	
New Literacy*	**Activity**	
Introduce with: Scientific Critical Economic Digital	Activity/Description Impact of our actions -> who or what does it affect? Being environmentally knowledgeable and stewards of our Earth. Evaluate date, think critically about solutions and reasonings. Returning recyclables for money and how our wants and needs impact our environment. Popplet and Toontastic	
Promote understanding by: *Scientific* *Economic* *Digital*	Activity/Description Students will discover how our daily actions negatively or positively affect our environment. Students will learn about the three R's (reduce, reuse, recycle). Students will practice sorting materials for recycling. Students will pretend to return their recyclables for "money." They must add up their final amount and compare and contrast with their peers (greater than, less than, equal too). Students will use Popplet to create a thinking map on the Three R's (reduce, reuse, recycle).	

Provide application/ higher-level thinking by: *Digital* *Critical* *Scientific*	Activity/Description Students will use Toontasic to creatively generate a social story about the Three R's. How can you encourage and motivate others to participate in the Three R's?

Strategies for differentiation with the display/lesson:

Teacher will differentiate money amounts and specific shapes to developmentally match the abilities of the struggling students (related to the *Promoting Understanding* section activity). Teacher will work in small groups with students to create their thinking maps on Popplet.

Average students will work in peers to create their thinking map on Popplet (will work together but make their own thinking map).

Teacher will differentiate money amounts and add additional shapes to developmentally match the abilities of the advanced students (related to the *Promoting Understanding* section activity).

Instructional Grouping Strategies:

Small group for struggling students throughout lesson.

Pairs for Popplet activity.

Ability groupings for Scavenger Hunt and Recycling activity in *Promoting Understanding* section.

Assessment:

Informal observations throughout lesson.

Work samples (Popplet and final Toontastic product).

Planning Template

Theme of Museum Exhibit/Unit:	The Environment and Me
Grade Level:	Kindergarten
Lesson Title	Water Pollution and the Impact it has on our Environment
Standards for Display/Lesson:	SS.60.4: Demonstrate awareness that people have a responsibility to take care of the environment through active participation in activities such as recycling. M.60.11: Represent data using a concrete object or picture graph according to one attribute.

<table>
<tr><td></td><td colspan="2">K-ESS3-3 Earth and Human Activity: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

CCSS.ELA-Literacy.SL.K.5: Add drawings or other visual displays to descriptions as desired to provide additional detail.</td></tr>
<tr><td>Content Concepts:</td><td>Simple
1. When our waters are polluted, plants and animals can’t thrive.
2. Our daily actions can prevent water pollution.</td><td>Complex
1. Once our waters are polluted, the pollution can travel for miles.
2. There has been a history of water pollution on our Earth.</td></tr>
<tr><td>Essential Questions:</td><td colspan="2">1. Water pollution has been a problem for decades, so why hasn’t it improved?
2. How can water pollution have a negative impact on our environment?</td></tr>
<tr><td>New Literacy*</td><td colspan="2">Activity</td></tr>
<tr><td>Introduce with:

Scientific

Digital

Social Studies

Language Arts

Mathematics

Critical</td><td colspan="2">Activity/Description

The impact. Scientific reasoning. POE (predict – observe – explain). Being environmentally knowledgeable and stewards of our Earth.

Epic, SMART Board, search engine.

Society and its impact on the environment.

Expressing and demonstrating understanding.

Graphing

Evaluate date, think critically about solutions and reasonings.</td></tr>
<tr><td>Promote understanding by:

Scientific/Critical</td><td colspan="2">Activity/Description

Students will learn about water pollution, specially oil spills and become stewards of our waterways. Students will use scientific reasoning and POE to determine how to “clean up” the polluted</td></tr>
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	water and discuss the impact this has on ocean animals and our overall environment. Understands cause and effect between the different instruments being used and the polluted waters as well as polluted waters and ocean animals.
Mathematics	Collect data on peers' predictions on which instrument would be best to "clean up" the polluted water.
Language Arts/Social Studies	*Read Oil Spill!* by Melvin Berger. Familiarize students with the Exxon Valdez disaster and the lasting effects of oil spills and water pollution has on our environment. Students orally and clearly explain what worked and didn't work in their "clean up."
Provide application/ higher-level thinking by:	Activity/Description
Scientific/Visual/Digital	Students will generate a product that demonstrates understanding of the unit, The Environment and Me. Including aspects from all the lesson themes. The students can pick a format to demonstrate their mastery and share it with the class.

Strategies for differentiation with the display/lesson:

Teacher will work with struggling students in small groups to fill in their bar graph (most of graph will be created for them). Struggling students will be paired up and work with teacher to complete final product.

Average students will pair up for peer editing of final product.

Advanced students will need to include a written piece in addition to their final product.

Instructional Grouping Strategies:

Struggling students will be paired up and work with teacher to complete final product.

Average students will pair up for peer editing of final product.

Pairs for oil spill experiment.

Assessment:

Formal and informal observations.

Data/graph work sample.

Final product work sample.

The First Lesson: Our Amazing Environment

Within lesson one, digital, visual, scientific and critical literacies are integrated throughout to support the theme of the museum, "The Environment and Me." The first display in the unit is titled "Our Amazing Environment," which supports our mission at school and helps our students feel connected to our Earth. Since we spend the majority of the day outside, it is important to teach my students to be stewards of their environment and take care of it. As Phillips (2019), mentions in his article, teaching our young students about environmental issues and their interconnectedness with the Earth, can inspire them to remain invested in making changes together, since these children are our future! It is never too early to demonstrate and model how and why it is important to take care of the environment. This unit also supports our students' empathy, respect, and responsibility to themselves, each other, and the environment.

To effectively differentiate and meet the range of needs and styles in the classroom, the layered curriculum approach was applied. Since no two learners are similar, it is important to understand each learners' readiness, learning styles, intelligence and thinking structure to better assist them in mastering the content (Gun, 2013). In this display, students are presented with foundational information that is needed for them to excel as the lesson expands. It is important to tap into students' background knowledge at the foundational level, to make certain they have the appropriate knowledge needed to retain and transfer any new information. One thing that isn't shown within this lesson, is the explicit teaching of choosing appropriate tasks or activities. This aspect is taught and reinforced since the beginning of the year. Parker, Novak, Bartell (2017) state the importance of teaching the students how to choose an activity that is appropriate for each individual. Subsequently, students can sustain their engagement and motivation while focusing on their strengths and not what they are lacking. Students will have opportunities to choose throughout the lesson, especially when they are doing research on their own.

TAG

Museum Exhibit/Unit Theme: The Environment and Me	**Display/Lesson Title:** Lesson 1: Our Amazing Environment
Grade Level: Kindergarten	**Additional Resources:** Smart Board Internet Epic Pest World for Kids Regular fiction and non-fiction books to support the topic Photographs of: food, animals, different parts of insects, different parts of plants and

	flowers, and non-related pictures (tires, trucks, etc…) Various food items and pictures of their plants Materials for movement pollinator game. Art materials for posters: large construction paper, scissors, tape, markers, paint, felt, pencils, rulers, feathers, goggle eyes etc…
Essential Questions: 1. Why is learning about our environment vital for our future and others? 2. How do plants and bugs affect our environment?	**Content Areas:** Science English Language Arts Math

Overview of Lesson

Within this lesson, we will be discovering aspects about our environment and why it is important to learn about it. We will specifically be focusing on the relationships between insects, plants, flowers, and ourselves. Students will be exploring through individual research using Epic and non-digital books, games, videos, and activities that will promote their understanding of the topic at hand. The first day we begin this exhibit, prior to the students arriving for the day, place photographs of insects, plants, food, and pictures of the students and teachers around the room. On the board write, "How are all these pictures related?" As students arrive, observe how they react and interact with the pictures. Re aloud the question of the day. Introduce to the whole class the KWL chart on what we know and what to learn regarding bugs and plants. Fill in appropriately. We then will use the Smart Board to further tap into our prior knowledge and take the Bug Biology quiz together located on the site *Pest World for Kids*. Students are then given a photograph of either food, animals, different parts of the insects, flowers, and plants as well as non-related items such as tires, cans, swings etc.…Students must work together to sort themselves into categories that make sense (all animals, all food, all non-related pictures, etc.). Students then count up how many of them are in each group. Discuss possible connections. Jot down all answers. At this time, go over key vocabulary such as, pollinators, pollen, flowers, stigma, pistol, antenna, mouth, and legs. The vocabulary for the exhibit is introduced and explained using the photographs and visuals presented.

Students then work with the teacher to use the Smart Board to find the documentary "People, Plants, and Pollinators" on the National Geographic Resource Library website to discover how plants and bugs impact our environment. As they use the internet, explicitly teach students about the safety of using the internet and explain not everything you see on the internet is true. Students will have some time to explore and use Epic to research their own choice of books on pollination, pollinators, and how plants and bugs impact our environment.

The next day, lay out real food items that can be found at school or at home such as, tomatoes, apples, mangoes, avocados, grapes etc. Students will discover the connection between the food we buy at the store to enjoy and the importance of insects. Students will think critically and discuss the consequences of the food we eat if there weren't any pollinators. As a group we play the pollinator game to facilitate how flowers are pollinated. Students are then given choices to further explore the topic on their own. The choices consist of; using photographs to sort and classify different insects and plants, go on to Pest World for Kids and either play one of the interactive insect games (able to pick out of 4 games) or watch one of the Pest Quest episodes, or read more on Epic. If time permits, do it the same day or hold off till following day. Students will then demonstrate their knowledge and create a poster to share with another class to illustrate why insects and plants are important to our environment. Assessment of this exhibit will consist of ongoing informal observations, their poster work sample, as well as their exit ticket at the end of each day. Exit ticket suggestions are as followed: Who are pollinators? Can we have a garden without insects/bees? Explain. What do plants do for us? Tell me something you learned about insects? Plants? How are insects, plants, food, and humans connected?

GLOSSARY

Strategies for Struggling Learners:

The teachers will be working in small groups with the struggling students to support them using the different resources to help them navigate how to do their own research and find developmentally appropriate books and games to further their understanding. The foundational level provided the students with their base of knowledge, tapping into what they already know to support the building of their future research and to engage and recall information about the connections between bugs, plants, humans, and the environment. The introduction of vocabulary words at the foundational level and the number of visuals will support and reinforce the new information gathered by the students so they can have a deeper understanding. The teachers will be carefully observing and providing support and guidance as needed.

Strategies for Average Learners:

Within this exhibit, the average learners will be exposed to numerous visuals (printed and tangible) as well as participating in movement activities to sustain their engagement and keep their minds active so they can deepen their overall understanding of the topic. The teacher will ask the students "How are all these pictures connected?" Through discussions, doing research on their own, and watching the videos, the students will be able to think critically on how each of these are interrelated and express their understanding through their poster for others to see. Students will be in charge of their own learning and will have to choose the appropriate material to support their message for their poster.

Strategies for Advanced Learners:

Advanced learners will be instructed to add a compiling sentence or sentences to their poster to describe, persuade, or encourage others to learn about their environment to help protect it. In

addition to demonstrating why insects and plants are important to our environment. Advanced students will be peer editing each other's work on the poster activity.

Standards:

K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.
CCSS.Math.Content.K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
CCSS.ELA-Literacy.W.K.7: Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
CCSS.ELA-Literacy.W.K.2: Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
S.60.2: Engage in collaborative investigations to describe phenomena or to explore cause and effect relationships.
S.60.9: Provide examples of how animals depend on plants and other animals for food.

Process:

Struggling, average, and advanced students, will be able to identify the connections between the fruits and vegetables we enjoy and the bugs and plants in our environment.

Through formal and informal discussions and their poster, all learners will demonstrate their understanding of why insects and plants are important to our environment.

Students will be grouped by ability levels in small groups for both digital sections to provide intentional questioning and background knowledge.

Average students will need address the importance of pollinators and our foods. Average students will work as partners to edit each other's posters.

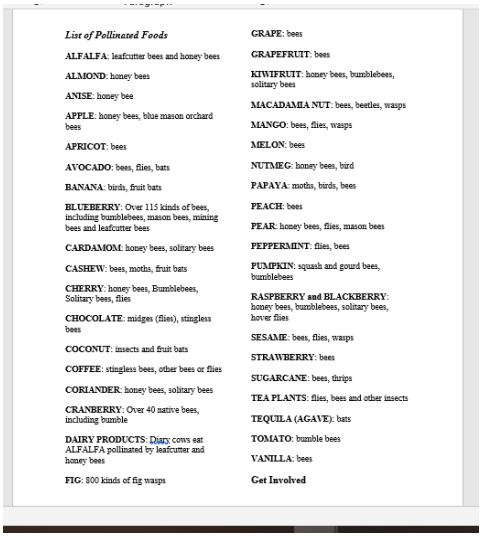
Advanced students will add a sentence or two to persuade, encourage, or describe to others why insects and plants are important to our environment. Advanced students will edit each other's posters.

Product:

Each layer of the exhibit is created to support and guide the students' mastery of the content. At the foundational layer, all learners are introduced to the appropriate vocabulary that will help give them meaning throughout the unit. Through the foundational layer activities, all students are tapping into their prior knowledge and the teacher is able to fill in any gaps if needed before moving onto the next layer. Through the use of the KWL chart and the Bug Biology quiz, the teachers will be able to identify what and how much the students already know and what they need to know to understand why insects and plants impact our environment. Many different learning styles are included throughout the activities to attract, motivate and engage the learners. All learners will have an opportunity to show evidence of their mastery of the content by

illustrating and presenting a poster that showcases the importance of why insects and plants are important to our environment as well as how they are all connected. The average students are instructed to include the importance of pollination in their poster. The extension for the advanced learners is to include a sentence or two, that persuades, encourages, and describes why insects and plants are vital for our environment and why it's important to protect our environment.

Throughout the exhibit, foundational information is gained and expanded from multiple sources such as the choices of books they read on Epic, the documentary "People, Plants, and Pollinators" they watch, and the numerous videos and games they engage with on Pest World for Kids. The pollinator movement game is a great way for students to comprehend how pollination works. Students will have numerous opportunities to think critically and brainstorm together about how and why insects and plants are vital aspects of our environment. Students are in the beginning stages of becoming stewards of their environment.



List of Pollinated Foods

ALFALFA: leafcutter bees and honey bees

ALMOND: honey bees

ANISE: honey bee

APPLE: honey bees, blue mason orchard bees

APRICOT: bees

AVOCADO: bees, flies, bats

BANANA: birds, fruit bats

BLUEBERRY: Over 115 kinds of bees, including bumblebees, mason bees, mining bees and leafcutter bees

CARDAMOM: honey bees, solitary bees

CASHEW: bees, moths, fruit bats

CHERRY: honey bees, Bumblebees, Solitary bees, flies

CHOCOLATE: midges (flies), stingless bees

COCONUT: insects and fruit bats

COFFEE: stingless bees, other bees or flies

CORIANDER: honey bees, solitary bees

CRANBERRY: Over 40 native bees, including bumble

DAIRY PRODUCTS: Dairy cows eat ALFALFA pollinated by leafcutter and honey bees

FIG: 800 kinds of fig wasps

GRAPE: bees

GRAPEFRUIT: bees

KIWIFRUIT: honey bees, bumblebees, solitary bees

MACADAMIA NUT: bees, beetles, wasps

MANGO: bees, flies, wasps

MELON: bees

NUTMEG: honey bees, bird

PAPAYA: moths, birds, bees

PEACH: bees

PEAR: honey bees, flies, mason bees

PEPPERMINT: flies, bees

PUMPKIN: squash and gourd bees, bumblebees

RASPBERRY and BLACKBERRY: honey bees, bumblebees, solitary bees, hover flies

SESAME: bees, flies, wasps

STRAWBERRY: bees

SUGARCANE: bees, thrips

TEA PLANTS: flies, bees and other insects

TEQUILA (AGAVE): bats

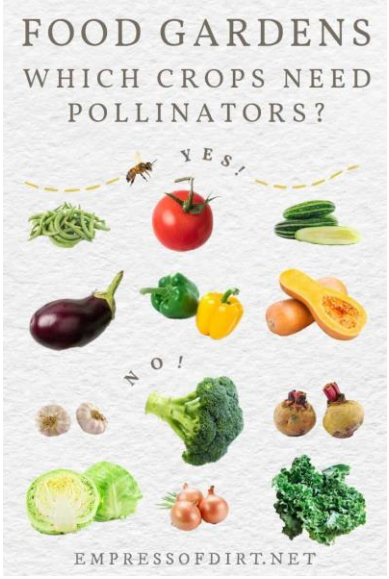
TOMATO: bumble bees

VANILLA: bees

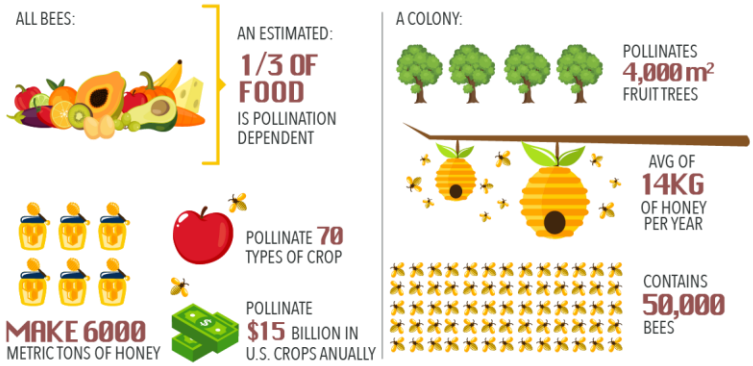
Get Involved

Chart of pollinated foods to be posted and used as a reference.

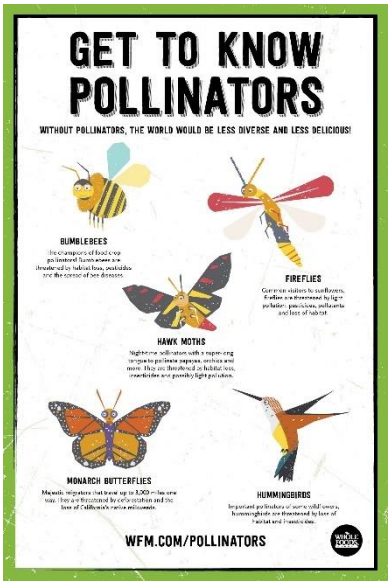
As a class, use Smart Board to take the Bug Biology quiz on Pest World for Kids.



Examples of food items that should be present for the students. Printed or tangible.



Example chart for students to reference.



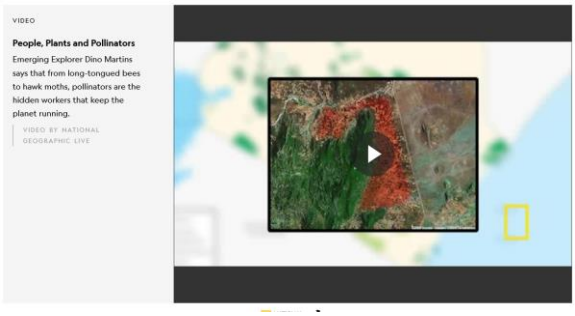
Examples of pollinators.

Pollination Relay Race

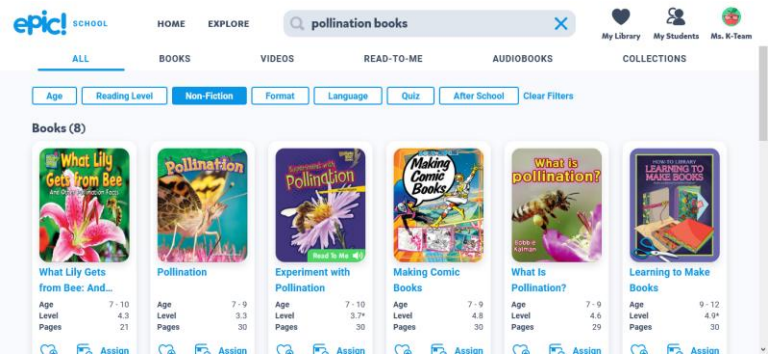
Separate your students into two even teams. Give each team a bee. The bee can be a puppet, or a picture of a bee glued to a craft stick. Set a bucket 10 feet in front of each team, another bucket 10 feet away from the first bucket and a pretend beehive 10 feet away from the second bucket. Fill the two buckets with circular coins made from construction paper. Half of them must have a "P" written on the top for pollen and the other half "N" for nectar. Instruct the children to line up. One student from each team will go at a time, pretending to be the bee. The students must run to the first bucket, grab a pollen coin and a nectar coin, and head to the second bucket to deposit a pollen coin. Next, the students grab another nectar coin and a new pollen coin and run to the beehive to deposit all of the coins. Students then run back to their teammates and pass the bee off to the next person in line. The team who finishes first wins.

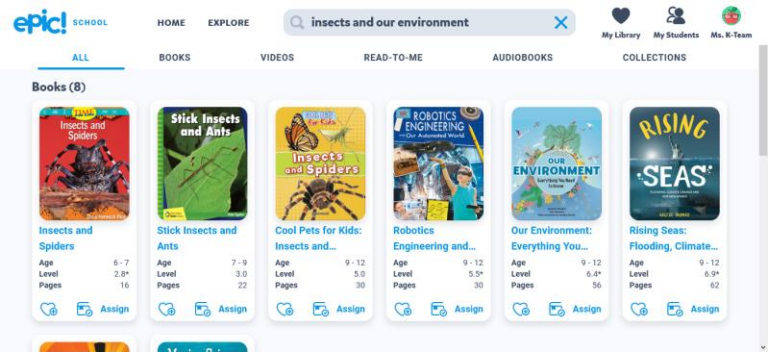
Pollination Movement Game Option 1

Pollination Movement Game Option 2

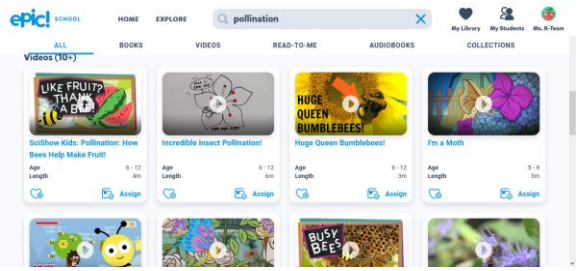


Video on National Geographic “People, Plants, and Pollinators”





Books on Epic that students can choose to read about pollination, insects, and our environment.



Videos on Epic that students can choose to watch for their research.

Videos on Pest World for Kids, students can watch for research.

Interactive games students can enjoy to further their knowledge about bugs. Found on Pest World for Kids.

All students will have the opportunity to choose which games, videos, and books to read.

Students will be working in partners.

The Second Lesson: The 3 R's: Reduce, Reuse, Recycle

Lesson two of my, "Environment and Me" unit consists of digital, visual, scientific, economic and critical literacies woven throughout to support my students understanding of the unit at hand. When integrating multiple literacies, the new and the old, students are more deeply engaged in the content and thus, more motivated to learn and excel. This second display is titled 'The 3 R's: Reduce, Reuse, Recycle." Within this lesson, a layered approach was implemented to ensure success, confidence, and motivation from all of my learners. Today's classrooms are filled with students of all abilities, backgrounds, readiness, and learning styles. Within the layered approach, students are offered choices that range from simple tasks at the beginning to more complicated tasks towards the end and the outcome that arises from said approach, is more engaged and motivated learners (Gun, 2013).

Furthermore, this lesson is important for me as an educator to facilitate the interest and knowledge surrounding our environment and to support my students' empathy, respect, and their responsibility to our environment. In a study from Forbes and Zint (2011), elementary teachers testified they are only teaching about the environment an average of 15.11 hours throughout the whole school year. This is astonishing and adds to the many reasons why it is important to facilitate awareness and respect for our environment.

In this lesson, students will be tapping into their critical and creative thinking, problem solving, and analyzing skills and abilities in all the layers of the lesson. At the foundational layer, the students are presented with two engaging questions and visuals to get them thinking critically about the topic at hand as well as to tap into their background knowledge. The information they gathered here will support them as they travel throughout the layers. This lesson includes multiple content areas to ensure students are able to make connections and are provided opportunities to apply and transfer their skills to new areas. The integration of scientific, economic, digital, visual and critical literacies into this lesson regarding real environmental issues, provides students with a clearer and deeper understanding of the connections between

foreign and intangible science concepts (Forbes and Zint, 2011). Students will have opportunities to work as a group, individually, and will be provided choices to sustain their engagement and keep them motivated to learn.

TAG

Museum Exhibit/Unit Theme: The Environment and Me	**Display/Lesson Title:** The 3 R's (reduce, reuse, recycle)
Grade Level: Kindergarten	**Additional Resources:** A lot of different recyclable items. Smart Board. Epic. Generation Genius Website for Video: "Reducing our Impact on Earth". Popplet. Small cut out shapes for recycling game Money/coins: pennies, nickels, dimes Art materials: pencils, crayons, paints, markers, tape, glue, hot glue, paper, scissors, ruler. Recycling symbols photographs. Materials for teacher initiated Reduce, Reuse, Recycle game: various items that can be sorted into these categories. Three baskets for each pile. Books on recycling, reusing, reducing. Recycle Bingo
Essential Questions: 1. How do humans positively and negatively affect our environment? 2. In what ways can we protect and preserve our environment for future generations?	**Content Areas:** Science Math Social Studies Art English Language Arts

Overview of the Display/Lesson

This lesson enables the students to dive a little deeper into our environment and how we can negatively and positively impact it as well as discovering how the 3 R's substantially help preserve our environment. On the first day of this lesson, have two large pieces of chart paper

ready with two separate questions. One will ask, “How do we affect our environment? Positives and negatives?” The second question will ask, “How can we protect and preserve our environment?” In addition to the chart papers, surround them with various recycling symbol pictures and ask students if they can “read” what they are or if they recognize any of them. Write down answers and suggestions from the class. This introduction will be the spring board for the rest of the lesson. As a class, turn to the Smart Board and with students help, type into the search bar the location for the video, “Reducing Our Impact on Earth” to generate ideas and stimulate more discussion. After the video, take students input and add it to the chart papers. At this time go over vocabulary such as: reduce, reuse, recycle, composting, sorting, symbols, pullulation, needs, and wants. Additionally, encourage students to bring in a variety of inexpensive/free recyclable items for a scavenger hunt later in the week.

After the whole group meeting, have students take turns using Epic to continue their research on the 3 R’s. Students are able to choose which fiction or non-fiction book they want to read to further their knowledge. When students are not on Epic, they are choosing between a center to be in. The choices are; Loose Parts, Library/Puzzles, Dramatic play which is Garden Store, Recycling Bingo, and being pulled by the teacher in small groups to play Reduce, Reuse, Recycle! The goal here is for students to determine which items can be reduced, reused, or recycled by classifying the “garbage” into three piles (reduce, reuse, recycle). Students will then work as a group to explain why they chose to put the item in the piles they did. Once everyone had a chance to investigate all centers and read on Epic, class comes back together as a group to design a thinking map on the 3 R’s using Popplet on the Smart Board. Discuss and add to the map ways we can reduce, reuse, and recycle.

The following day, tell students they will be going on a scavenger hunt to find and collect recyclables to which they will be creating an imaginary or real product using the items they collected. There will be non-recyclable materials available for the students to use for their products, however, they can only use them if they have enough money to “buy” them. Therefore, make sure to remind students the more they collect their correct recyclables, the better opportunity they have to gain money. Each group is made up of 3 students of similar abilities and each group will be assigned a shape. When they are on their hunt, only the square group is allowed to collect the items taped with a square picture. Once all items are collected, the group works together to sort them into appropriate piles for recycling (paper, plastic, and cardboard). After they have correctly sorted the items, a teacher will check their work. If correct, students will be given money for their hard work. Each item will be a certain amount and range from one penny, one nickel, one dime. For examples all the cardboards will be one nickel each and all plastic will be one dime each. Amounts will differ depending on their ability level.

Once the groups have collected all their money, they will need to count it all up. Before buying their materials, each group will need to brainstorm what they actually need and want for their product. This process will help the students understand in an authentic way, the basics of wants versus needs and the idea that to use and get materials, one needs to use their money to buy it.

Now they are ready to pick and choose which non-recyclable items they want or need to use for their recyclable product they are making.

Once the students have completed their product, they will be in charge of labeling it and describing what it is used for. Students present their product to the class. Products can be anything from reusable pencil or crayon holders, made up machines, a gadget, bowl, clothing, o toy to name a few. Here they can be as creative as they want!

GLOSSARY

Strategies for Struggling Learners:

Students will be placed in groups based on their ability level to developmentally differentiate regarding the money amounts and the specific shape/s being used to label their group. A teacher will be carefully observing the students as they participate in the scavenger hunt, making sure they are collecting only their shapes. Additionally, the students will be given a hundred board and number line to help them count their money. A teacher will be present when they are at this point in the activity and when they are "buying" their items. Struggling students will only be counting by ones, therefore, will only be given pennies. When students are using Epic, the other teacher will remind students how it is used and make sure they are choosing on topic appropriate books. Students must label their product with at least an initial letter.

Strategies for Average Learners:

For this lesson, the average learners will have plenty of time to work by themselves and with others to further their knowledge on the 3 R's through their choices during center work as well as when they are using Epic. The use of choice greatly engages them and keeps them motivated to continue to learn. Average learners will also be placed into similar abilities groups for the scavenger hunt. Average students will be looking for items labeled with two different shapes (a square and a triangle). They are only to collect those. Additionally, average learners will only be receiving pennies and nickels for their items. A number line and hundred board will also be provided if needed. Students will work together to count up their money, teacher will double check their work and send them back if it's not correct. Will provide support and guidance as needed. Students need to use inventive spelling when labeling their product.

Strategies for Advanced Learners:

Students are grouped by ability level for the scavenger hunt. Prior, students will be choosing developmentally appropriate books on Epic to further their research, making sure to read at least one fiction and one non-fiction. The advanced student's scavenger hunt groups will be labeled with a shape pattern such as circle, rectangle, square, circle. The money amounts will reflect the student's ability levels and will be using all coins, pennies, nickels, and, dimes.

Standards:

SS.60.4: Demonstrate awareness that people have a responsibility to take care of the environment through active participation in activities such as recycling.

K-ESS3-3 Earth and Human Activity: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

CCSS.Math.Content.K.G.A.2: Correctly name shapes regardless of their orientations or overall size.

CCSS.Math.Content.K.OA.A.1: Represent addition and subtraction with objects, fingers, mental images, drawings[1], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations

CCSS.Math.Content.K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[1]

L.60.10: Use language to share ideas and gain information.

L.60.26: Use early developmental spelling. May use one letter for initial or final sound to represent whole word.

CA.60.5: Use a variety of tolls and materials to represent ideas through the visual arts.

Process:

Advanced, average, and struggle learners, by the end of the lesson, will be able to identify and discuss how humans positively and negatively impact our environment, in addition to explaining how we can protect our environment by participating in the 3 R's.

By designing and creating a product made out of mainly recyclable materials and other non-recyclable they were able to "buy," all students should walk away with the basic understanding of wants versus needs and the importance of reusing materials to create something new!

For the scavenger hunt and product build, students will be in groups of three by ability levels.

Struggling learners will have their group designated by one shape and will only use pennies to count by one. A teacher will be present throughout the scavenger hunt and product build to support them.

Average learners will have their group designated by two shapes and will use pennies and nickels for their coins.

Advanced learners will have their group designated by a shape pattern and will use all the coins. For their end product, students need to use inventive spelling to label their product as well as write one to two sentences describing what it does or used for.

Product:

The lesson was created to ensure students are gaining mastering as they move through the different layers. At the foundational level, all students are tapping into their background knowledge, learning the key vocabulary words associated with the topic. By relating the topic to their own lives, they are motivated to learn and engagement is sustained. Using the two guiding questions and bringing in the visuals, helps students to begin to tap into their critical thinking. Students will be able to deepen their knowledge using digital books as well as hard copies found in the library. This lesson integrates multiple content areas so students are better able to make connections and transfer and apply their skills to new areas and relate them to their own lives. Students are given opportunities that attract a variety of learning styles and abilities to motivate and engage learners to master the topic.

By implementing economic literacies in a meaningful way, students will be able to begin or further learn about the abstract economic concepts found throughout the lives. Concepts such as wants and needs, consumerism, and the importance of reusing items to reduce garbage waste is authentically woven throughout this lesson.

Recycling symbol pictures

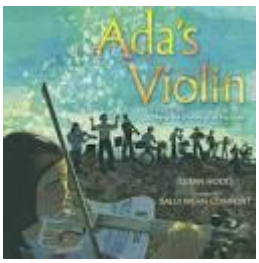
https://www.generationgenius.com/videolessons/reducing-our-impact-on-earth-video-for-kids/

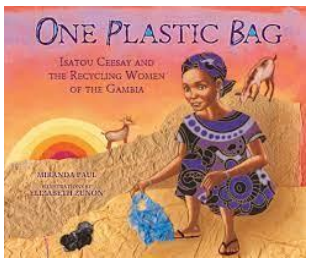
Video the whole class watches at start of lesson.

1 glue bottle = 5 cents.	1 scissor = 4 cents.
Set of 5 markers = 10 cents.	Set of 6 crayons = 5 cents.
Extra construction paper = 2 cents each.	1 pencil = 1 cent.
Hot glue done by teacher = 12 cents.	1 paint cup = 5 cents.
Roll of tape = 4 cents.	1 ruler = 3 cents

Example of a mind map using Popplet.

Recycling Bingo Game for center options.





Additional books for students to look through.

The Third Lesson: Water Pollution and the impact it has on our environment

Lesson three of my "Environment and Me" unit is titled "Water pollution and the impact it has on our environment," was created to further deepen my students' understanding and appreciation for our natural world. As Forbes and Zint (2011), stated in their article, to become scientifically and environmentally literate, it is important for educators to provide inquiry-based practices to ensure our students are learning about environmental issues as well as the practice of becoming decision makers and action takers towards the environmental issues. Therefore, it was vital in this lesson that the students were not just reading or watching about oil spills or water pollution, but actually see it for themselves through the hands-on activities that were provided. To encourage deeper engagement and a motivation to learn more, this lesson consists of multiple literacies such as digital, scientific, visual, environmental, and critical literacies throughout the

entire lesson. Again, a layered approach was implemented when creating this lesson to guarantee all my learners are provided with the foundation, the skills, the knowledge, and the abilities, to maintain their confidence as they continue learning.

As stated in the previous lessons, this unit, which consists of this third lesson, is important to me personally, and due to the fact, I am at a nature – based school, my students also have a natural curiosity and an ownership to our environment. Therefore, my students' interests, their curiosity, and my responsibility to guide them to become stewards of our earth, to be empathic, respectful, and responsible human beings is the cornerstone of this lesson and the whole unit. Through the integration of multiple content areas, my students are strengthening their science, math, art, language arts, and social studies content abilities. Their end product encompasses not only these content areas, but also the content of whole unit. It was important to me to create an end product that not only captures the meaning of this specific lesson, but the whole unit itself. As Hansel (2018), mentioned in their article, to develop our students' understanding of narrative elements, and the power of peer teaching, turning their stories into short videos helps them become enthusiastic as authors and to improve their work. Having their peers watch their story videos and checking to see if they understood their message, helps students comprehend elements of their own writing, however, it is just using a new literacy format instead.

Therefore, I turned to Toontastic for my students to deliver their message to others in a fun interactive way, which enables all levels of learners to engage with. Through this assignment, the students need to be able to think critically and creatively to integrate the science, social studies, creative, and language arts components to effectively get their message across in their animated social stories. This product becomes their assessment piece and as Gun (2013) mentions, according to the layered approach, the main idea of the assessment process is the awareness of learning and not the act of completing the activities. Through this product, my students are presenting their understanding of the specific lesson as well as the whole unit. This video captures what they know and understands as well as what I as a teacher, may need to reteach or reinforce; whether it is science related or literacy related. Through the many different means of learning and exploring, whole and small group, individual and pair work, and center work, the students are supported in various formats to reach and motivate all types of learners.

TAG

Museum Exhibit/Unit Theme: The Environment and Me	**Display/Lesson Title:** Water Pollution and the Impact it has on our environment
Grade Level: Kindergarten	**Additional Resources:** For "oil spill" –small bins, plastic animals and plants, Dawn Dish Soap, toothbrushes, sponges, or paint brushes.

	Mind map Center for "polluted" water activity: strainer, shifter, tongs, ladle, spoon, sponge. Random garbage pieces, vegetable oil, scrap papers, pencil shavings, pieces of food, feathers, plastic animals and plants. Water pollution observational sheet. Smart Board Chrome books for: Epic and Toontastic Chart and graphing paper for teacher. Find, sort, and graph recyclable sheet for students' center work. Various books A cup of dirty water for each student.
Essential Questions: 1. How does water pollution have a negative impact on our environment? 2. When our waters are polluted, how does it affect the animals and plants? 3. How can you play a part in preserving our environment?	**Content Areas:** Science Social Studies Mathematics English Language Arts Art

Overview of the Display/Lesson

Students are coming full circle in the investigation about our environment and me as well as how we all are interconnected. Within this lesson, a focus on water pollution and its effect on wildlife, the ecosystem, and ourselves is the main component.

To begin this lesson, review previous lessons (display A and B), going over main points and showcasing the anchor charts, vocabulary wall, and previous work. Then say, "We have discovered and investigated many aspects of our environment and how it impacts our own lives as well as the lives of the plants and animals. Today, we will be focusing on pollution. Does anyone know what pollution is or means?" Create a mind map on the board for the word pollution. Add all appropriate comments to map.

Hand every student a dirty cup of water. Ask them, "Does your water look good to drink?" Ask them about what kinds of things can make our water dirty and how and who this may impact. Add suggestions on the board/to map. Read out loud *Oil Spill* by Melvin Berger and watch follow up video going into more details which is titled "The Oil Spill: And how it affects the ocean." Have a discussion after the video and check in with how the students are feeling. Jot

down observations and comments from them, add to the board. Next, pair students up (take into consideration behaviors over ability level) and supply them with a small bin full of water, plastic polar bears, fishes, and plastic plants. Give each pair a cup of black paint, a cup of oil that has been mixed with oil based black food coloring, and Dawn Dish Soap. Remind students that they will be using scientific reasoning and the POE process (predict – observe - explain) throughout this whole lesson. Tell students their job is to clean the animals and plants in their water. Ask students for suggestions on what kind of materials will be needed to clean their animals and plants. Tell the students they will have to decide as a pair which tool, they want to use to effectively clean their items. They get to choose from a toothbrush, paint brush, or a sponge. As they decide what to use, ask them to explain why they are choosing this tool. Before they decide, collect data on students' predictions on which instrument would be best to "clean" the animals. Demonstrate on how to make a simple bar graph reflecting the three tools they are able to use and the data collected. Identify which tool is the most popular and the least. Now it is time for the pairs to see if their tool was the correct choice. Give the pairs the tool they requested and observe them as they work. After 10 minutes, come back together as a group and discuss findings, what worked and didn't work and why? Add to board any concerns students have regarding the impact the oil has on the wildlife and ecosystem. Discuss how this will negatively impact the animals and plant life in that area. Will humans be affected too? (Think back to video).

Next day for centers, have students choose which area they would like to investigate first. Choices are:

1. Water pollution at the sensory table: How can you "clean" this up? Students will use a variety of "tools" to try to clean the polluted "ocean."
2. Using their chrome books to find themed books on Epic.
3. Water pollution observation.
4. Find, sort, count, and graphing activity (recyclables).

After everyone has had a chance to investigate all centers, come together to discuss additional findings, questions, and concerns from students. Add to board if applicable. Ask students what worked and didn't work in the water pollution center and why.

If time permits, start the same day or hold off until next day. Explain to students they will be using all the information and knowledge generated from this unit to creatively make a social story about our environment and how important it is to preserve it using the application Toontastic. To demonstrate understanding of this unit, within this product, students must be able to clearly encourage participation and inform others. Students will begin by planning on paper and after they have a general plan in mind, will be instructed to use the application Toontastic. After teacher checks out everyone's story, as a class, we will have a viewing party of everyone's work.

GLOSSARY

Strategies for Struggling Learners:

Within the foundational level, students were provided a review of past content, vocabulary and an introduction to the new vocabulary needed for this lesson. By doing so, the struggling learners are better set up to gain a deeper understanding on what and how pollution affects our environment. The foundational level gave students a way to review what they have already learned and relate it to the current lesson to support the connections they have already made. Teachers will be working with the struggling learners in small groups when they are at centers two, three, and four; supporting and scaffolding them as needed. For center three, students will be allowed to write the first and or last letter of the word they choose to answer the question. Teacher will transcribe the rest of their thoughts. Teachers will have their Epic set up so they are set for reading developmentally appropriate books. For their end product, struggling learners will be given a pre-made planning sheet for them to brainstorm their story using pictures. The teachers will transcribe their thoughts. Additionally, the teachers will support struggling learners in navigating and completing the social story on Toontastic. At least, one out of the three lesson components need to be identified in their story.

Strategies for Average Learners:

Within this lesson, average learners will have an opportunity to work individually, as a pair, and in small groups. The foundational level provides them with a way to reconnect the previous lessons with the current one and tap into their prior knowledge to further support maintaining and gaining new information. For the planning of their end product, students will be given a pre-made brainstorming sheet but will need to use inventive spelling as well as illustrations to get their main point across. Average learners will peer edit each other's social stories. At least, two out of the three lesson components need to be identified in their story.

Strategies for Advanced Learners:

During center work, advanced learners will be provided with an empty graphing paper that they will need to fully fill in as well as a large number of items to sort through. When the advanced learners are using Epic, they will need to complete a listening sheet for each book they "read" or listen too. For their final product, advanced learners will work in pairs to generate a social story that has "chapters" or episodes all while staying on topic.

Standards:

SS.60.4: Demonstrate awareness that people have a responsibility to take care of the environment through active participation in activities such as recycling.

CA.60.5: Use a variety of tools and materials to represent ideas through the visual arts.

S.60.12: Evaluate the appropriateness of a material for a given purpose based on its properties.

S.60.2: Engage in collaborative investigations to describe phenomena or to explore cause and affect relationships.

M.60.11: Represent data using a concrete object or picture graph according to one attribute.

K-ESS3-3 Earth and Human Activity: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

CCSS.ELA-Literacy.SL.K.5: Add drawings or other visual displays to descriptions as desired to provide additional detail.

CCSS.ELA-Literacy.W.K.2
Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.

Process:

Struggling, average, and advanced learners will be able to identify how pollution, specifically water pollution, affects our environment and how it impacts our ecosystem and wildlife. Throughout this whole unit, all learners will have a deeper and more meaningful understanding of the importance of our environment as well as how to preserve it.

Through the Toontastic social stories, all learners will be solidifying their knowledge about our environment and how precious it is as well as gaining the skills and strategies needed to write and create their own stories.

At the beginning of the lesson, students are paired up by behaviors rather then ability level so students can appropriately interact with the materials in a safe and productive way.

For the struggling learners, a teacher will be present with them throughout center work and the creation of their story, guiding them and scaffolding as needed. For the graphing center, struggling learners will be given a graph and a lesser number of items to sort. They will only be in charge of writing the first and/or last letter of the word for the observational center. Teachers will help support struggling learners how to find developmentally appropriate books on Epic.

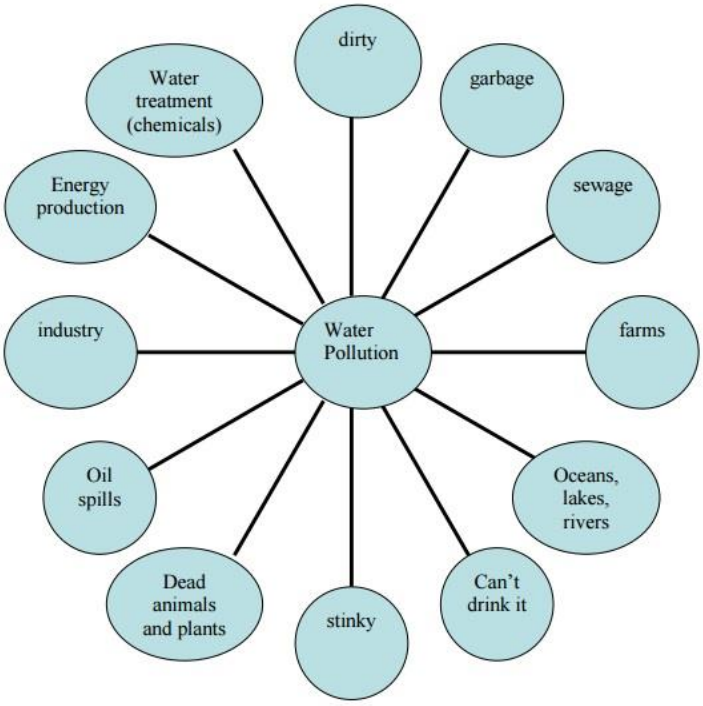
Average learners will peer edit each other's social story before it is turned in.

Advanced learners will be given an empty graph sheet for that specific center and a larger number of items to sort. They will also need to complete a listening guide sheet for every book they read on Epic. Advanced learners will be working in pairs for their social stories to create multiply episodes or chapters.

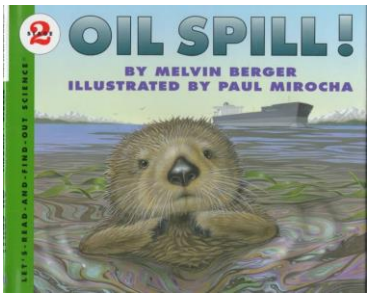
Product:

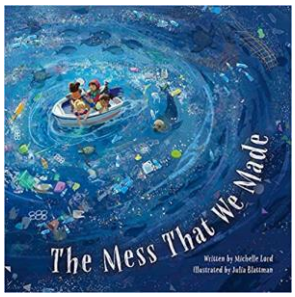
Each layer of this lesson was created to support the students as they gained mastery. The different layers were created to guide and support the students in being able to connect the

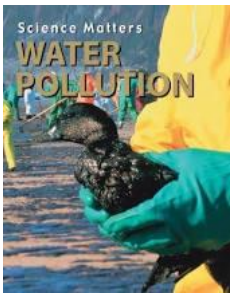
previous information to the new knowledge being presented. At the foundation level, students were given the opportunity to review past information and vocabulary as well as learn new vocabulary needed for that lesson. With the help of students, the creation of a mind map was created to foster and organize ideas around the word pollution. Students' interest and motivation was fostered by relating it to their own lives and being able to actually see the "pollution" in their cup of water and through a real-life video a child similar to them made. When students are able to identify and understand the relation the lesson has to their own lives, ensures students are more engaged and motivated to do their best. Through the use of open-ended discussions, informal and formal observations throughout, and one on one time, enables the teacher to have a stronger sense on the ability levels of the students and fill in any gaps as needed. Since this lesson integrates multiple disciplines, all students are better able to find connections, transfer and apply their newly gained skills to different areas and form a deeper understanding of how our environment impacts us and vice versa. The integration of the different literacies, also ensures all varying abilities and skills sets, are able to find an aspect they like or enjoy.

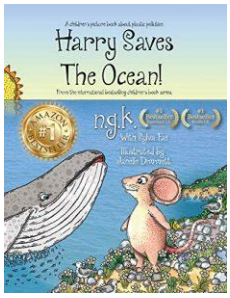


Example of a mind map



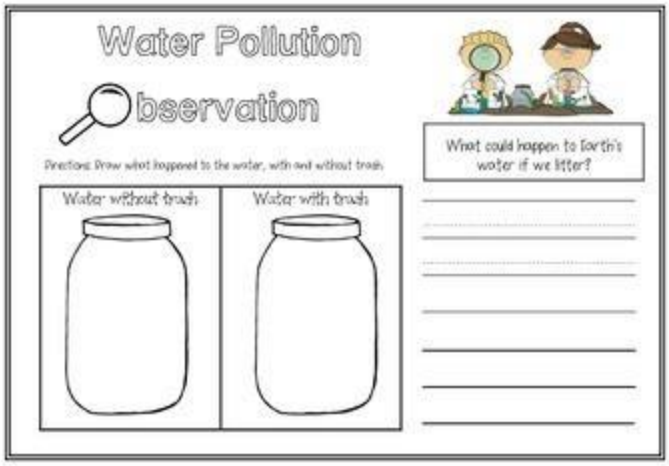




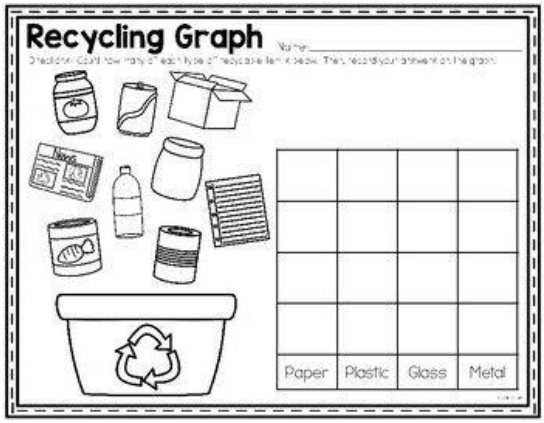


Books for read out loud.

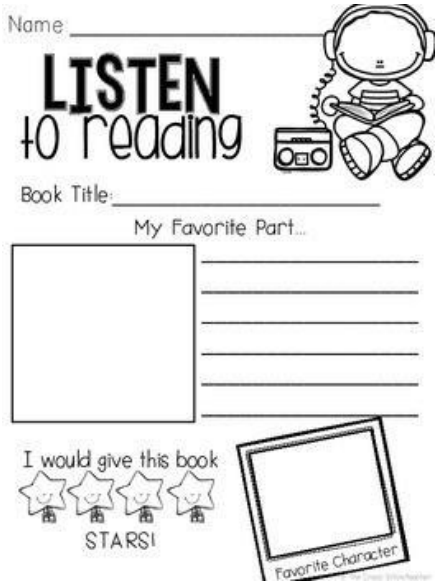
First video to watch after reading *Oil Spill*.



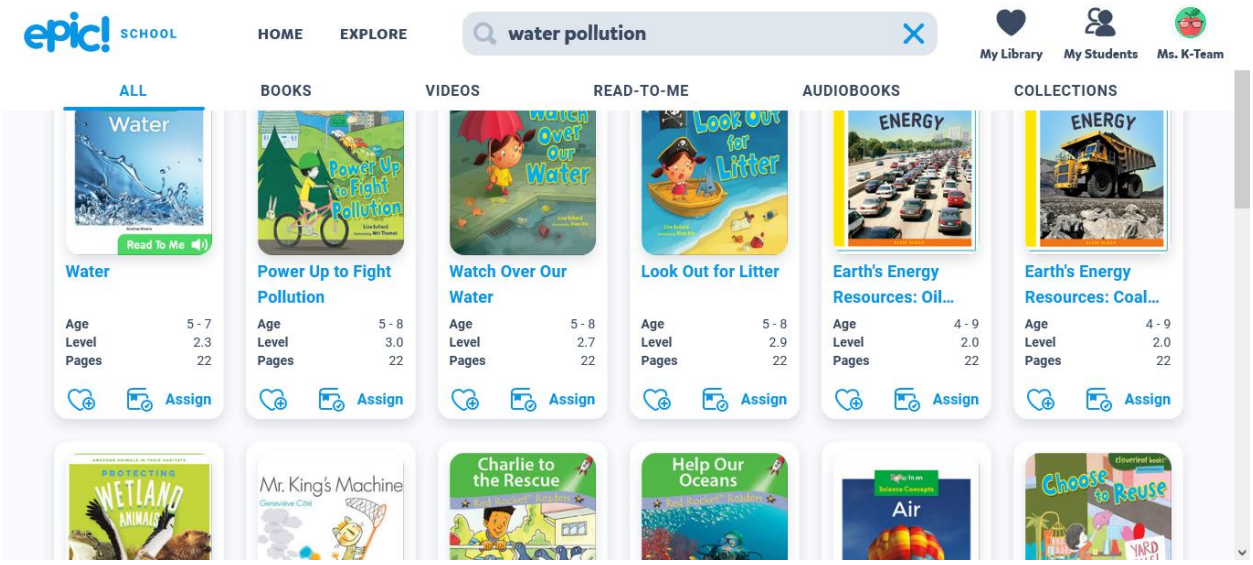
For center work: Students observe and illustrate what they notice in “polluted” water and “clean” water. Students use inventive spelling to either write a sentence or one word on what happens when we litter.



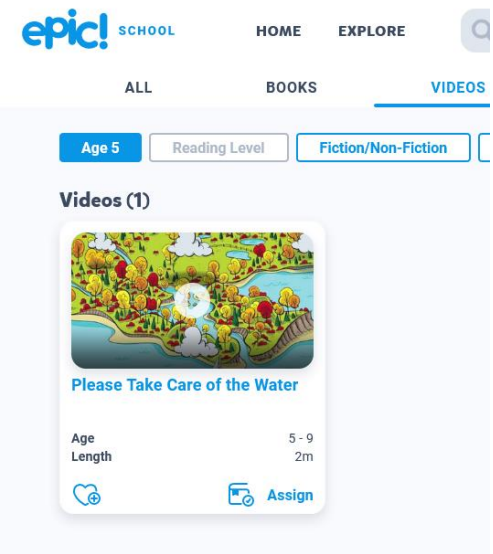
Examples for center work: Find, sort, and graph recyclables. Students will have a large bin full of different recyclables. They will need to sort then fill in the graph.



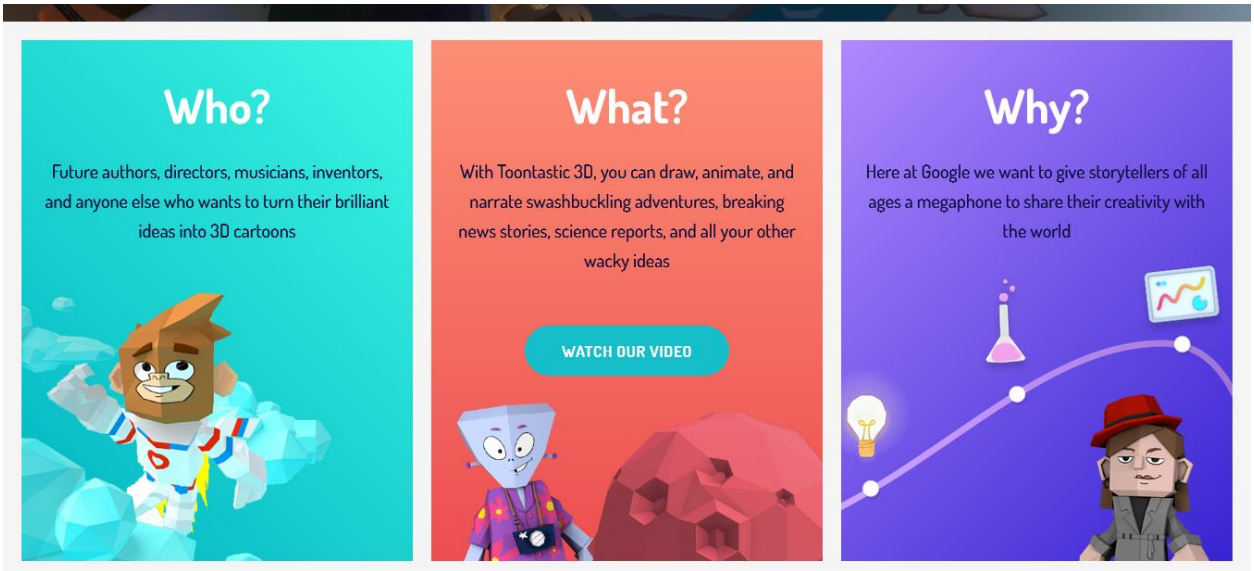
Listening sheet for advanced learners.



Book options on Epic



Everyone is assigned to watch this on Epic



Toontastic site for students end of unit product.

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