



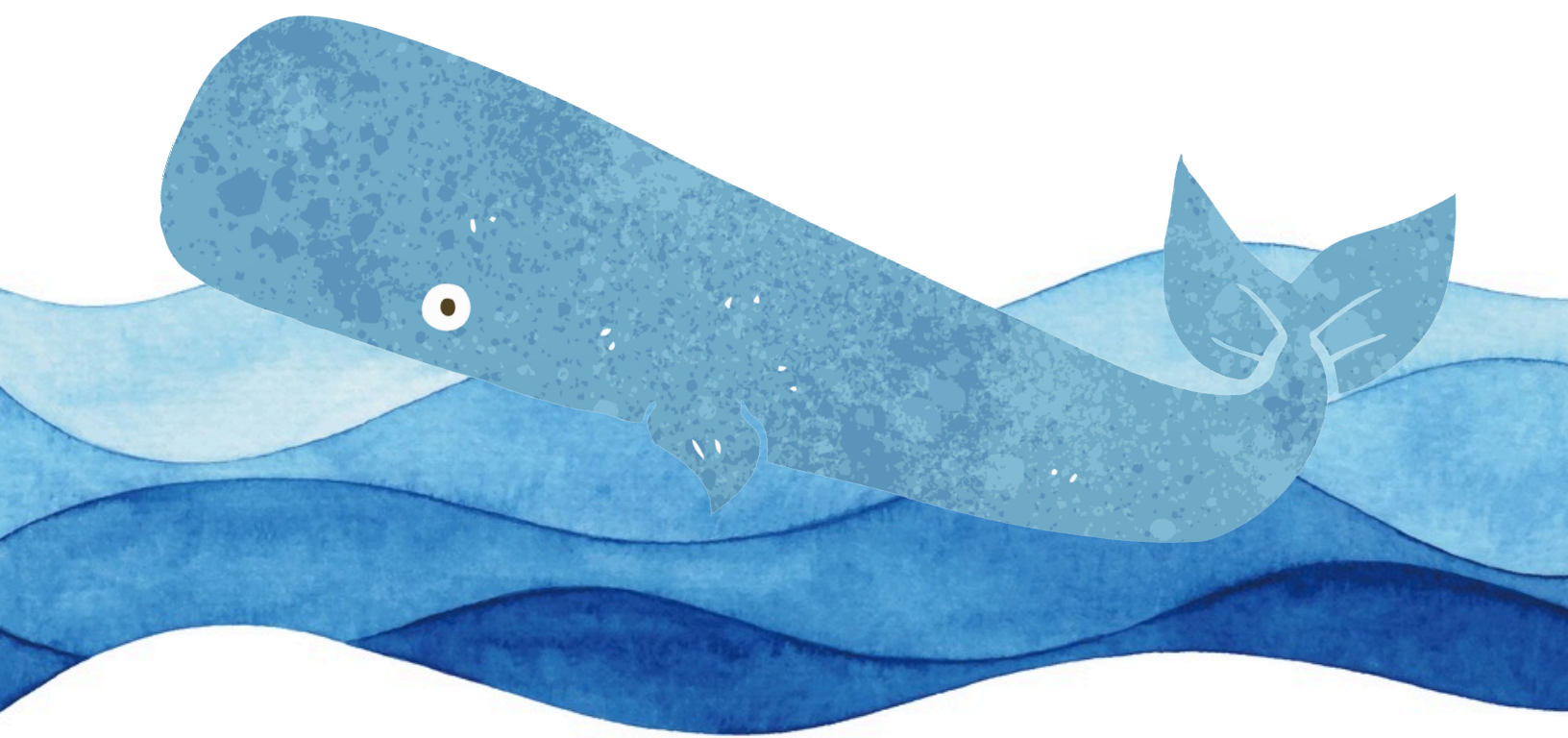
Water World

A 3-5 STEM Experience

Created by C.I.T STEM Curriculum Team

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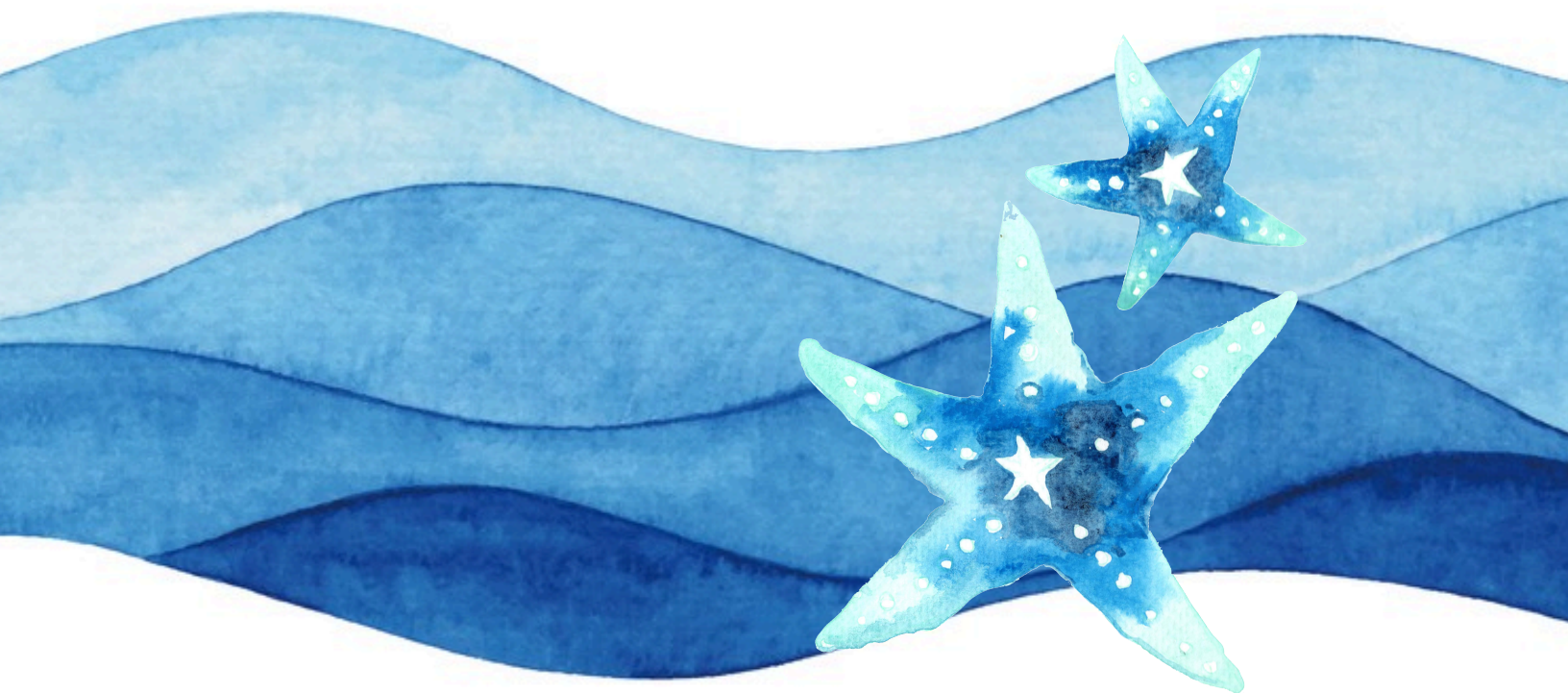
About This Experience

In this experience students will explore water. They will study how water moves within the earth and atmosphere, the visible and invisible ways it fuels our modern society, the sources and impact of freshwater pollution, and solutions to water pollution that are being implemented in their community and throughout the world. Students will read high quality texts, watch engaging videos, conduct hands-on experiments, and participate in an immersive field trip to understand earth's most precious resource. At the end of the program students will showcase the knowledge and skills they gained in a culminating project.

Materials

Quantity	Item
20	Laptops
20	Notebooks
20	Scissors
20	Sets of Colored Pencils
20	Glue Sticks
1	Where On Earth Are Rivers? By Bobbie Kalman
1	5 Gallon Bucket
1	1-Cup Transparent Measuring Cup and 2-Cup Transparent Measuring Cup
1	Eyedropper
1	Pack of Ground Coffee
1	Bottle of Vegetable Oil
2	Packages of Coffee Filters
2	Containers of Sand
1	Bag of White Aquarium Gravel
2	Bags of Cotton Balls
2	Boxes of Macaroni Noodles
1	Pack of Clear Plastic Cups
10	Stopwatches
5	Large Plastic Bowls

5	<u>Plastic Pitchers</u>
1	<u>Box of Saran Wrap</u>
1	<u>Box Large Rubber Bands</u>
5	<u>Glass Mugs</u>
5	<u>Boxes of Food Coloring</u>
1	<u>Package of Small Cups</u>
1	<u>Bottle of White Vinegar</u>
1	<u>Container of Salt</u>
1	<u>Pack of Computer Paper</u>
5	<u>Spray Bottles</u>
5	<u>Packs of Washable Markers</u>
1	<u>Pack of Foil Pans</u>
5	<u>Rolls of Scotch Tape</u>



Note to Activity Specialists

This experience comes with daily lesson plans and [corresponding slides](#) for each lesson. A projector is required to share the slides during the lesson as part of the whole class instruction. The slides contain visuals of the Essential Question, daily learning objective, as well as embedded videos, texts, activities, and experiments aligned to each lesson. The first two lesson plans in this experience are scripted to help you acclimate to teaching the experience. The rest of lessons are structured but less scripted to allow room for your unique voice and style.

All lessons are designed to be 45 minutes long. There are two lessons for each week of the seven week summer session with suggestions for extension activities if time permits.

During week 5 of this Experience, students will take a field trip to the Bronx River. The Bronx River Alliance has several field trips that classes can choose from. Please work with your Site Director to plan and book a field trip with the Bronx River Alliance as far in advance of beginning this Experience as possible. Scroll down to the bottom of [this webpage](#) to view all field trip offerings and book your trip!

We hope you enjoy teaching this experience to your students and we hope they enjoy exploring the wonderful world of water!

Week	Lesson	Learning Objective(s)	Big Idea
1	1	SWBAT explain the differences between fresh water and salt water. SWBAT identify what they already know and what they hope to learn about water.	Freshwater is a natural resource that all living things need to survive. Freshwater is a very small percent of the water on earth and it is finite. New York City's water comes from lakes and reservoirs in the Hudson Valley and Catskills.
	2	SWBAT explain where New York City's water comes from, including the processes involved in making sure it is clean and safe to drink.	
2	3	SWBAT explain how all of earth's water is connected through the water cycle.	The amount of water on earth does not change. The water we have today was the same water that was around when dinosaurs roamed the earth, and the water in our glass may have once flowed in a river halfway around the world. Water moves through a cycle of evaporation, condensation, and precipitation over and over again.
	4	SWBAT conduct research and present their findings to their peers.	
3	5	SWBAT explain multiple causes of water pollution.	Stormwater pollution occurs when precipitation falls on an impervious surface and flows downhill, picking up pollution along the way until it runs into a water source such as a stream, river, or lake.
	6	SWBAT define a watershed and explain how stormwater pollution moves through a watershed.	

Week	Lesson	Learning Objective(s)	Big Idea
4	7	SWBAT describe ways to prevent stormwater pollution and identify some of these solutions in their community.	There are many ways to prevent stormwater pollution including properly disposing of all kinds of waste and the use of green infrastructure. One of the most effective ways to prevent stormwater pollution in urban areas is by increasing the number of permeable surfaces by building rain gardens, or bioswales, to soak up and help filter rainwater.
	8	SWBAT explain how rain gardens, or bioswales, help prevent stormwater pollution.	
5	9	Prepare for the Field Trip	
	10	Field Trip	
6	11	Introduce the Culminating Project to Students	
	12	Culminating Project Work Time	
7	13	Culminating Project Work Time	
	14	Culminating Project Showcase	



Family Letter

Dear New York Edge Caregivers,

We are very excited to kick off our next STEM experience: *Water World!* Over the next several weeks, students will explore the fascinating world of water. They will study how water moves within the earth and atmosphere, the visible and invisible ways it fuels our modern society, the sources and impact of freshwater pollution, and solutions to water pollution that are being implemented in their community and throughout the world.

Over the course of the experience, students will read high quality texts, watch engaging videos, conduct hands-on experiments, and participate in an immersive field trip to The Bronx River. All of these activities will help them answer the Essential Question: *How important is water?* At the end of the Experience, students will showcase the knowledge and skills they gained by completing a project and sharing it with you and other members of the community.

Want to keep the learning going at home? The following questions would be great conversation starters with your child. They are broken down by each week of the Experience:

Week	Question	The “Big Idea” your child will take away from their learning this week
1	What is freshwater and where does our freshwater come from?	Freshwater is a natural resource that all living things need to survive. Freshwater is a very small percent of the water on earth and it is finite. New York City’s water comes from lakes and reservoirs in the Hudson Valley and Catskills.
2	How much water is on earth, and where are some of the largest freshwater sources on our planet?	The amount of water on earth does not change. The water we have today was the same water that was around when dinosaurs roamed the earth, and the water in our glass may have once flowed in a river halfway around the world. Water moves through a cycle of evaporation, condensation, and precipitation over and over again.
3	What are the causes of water pollution?	Stormwater pollution occurs when precipitation falls on an impervious surface and flows downhill, picking up pollution along the way until it runs into a water source such as a stream, river, or lake.
4	What are some solutions to stormwater pollution?	There are many ways to prevent stormwater pollution including properly disposing of all kinds of waste and the use of green infrastructure. One of the most effective ways to prevent stormwater pollution in urban areas is by increasing the number of permeable surfaces by building rain gardens, or bioswales, to soak up and help filter rainwater.
5	Field Trip	
6	Culminating Project Work Time	
10	Culminating Project	

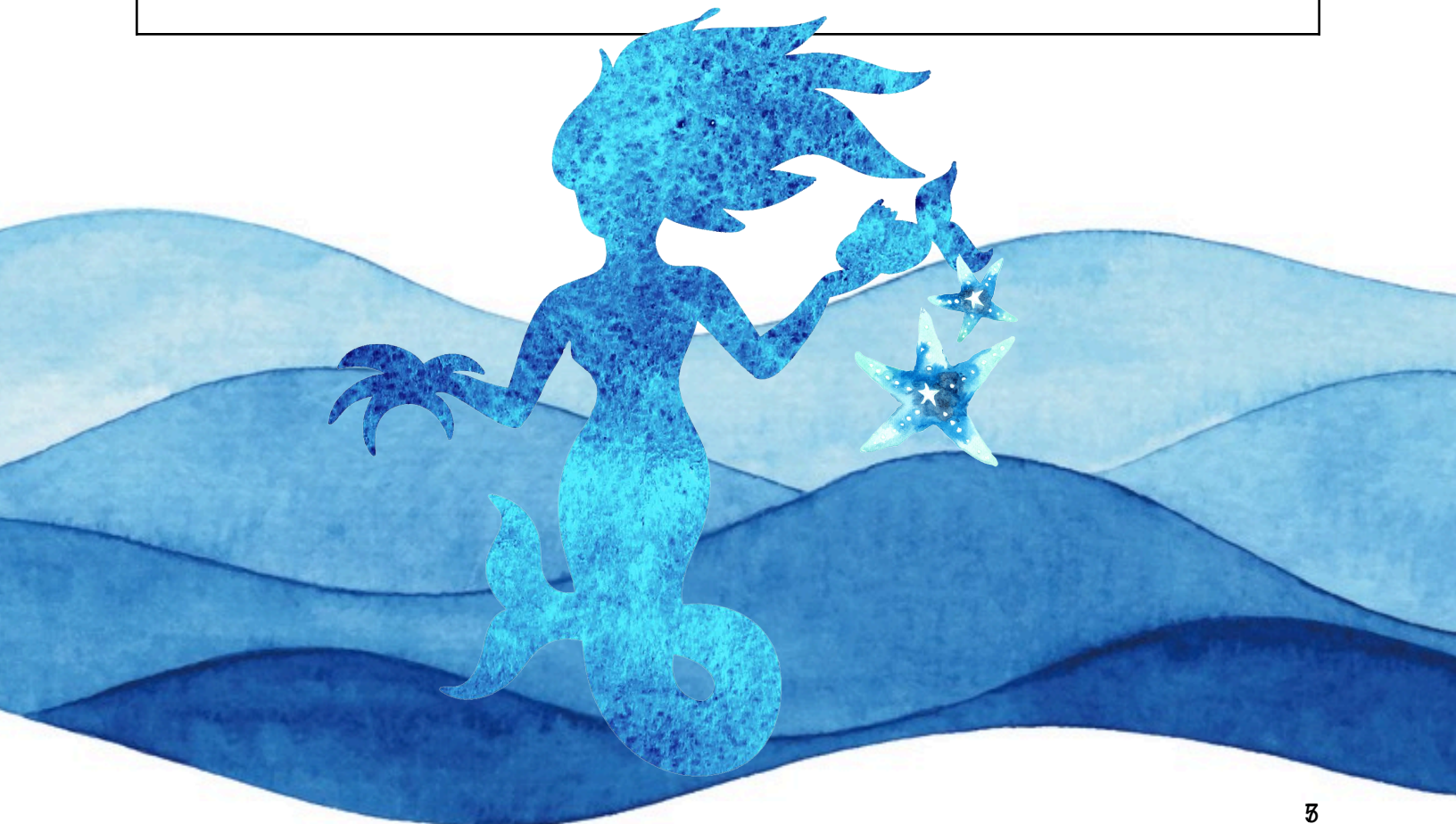
We can’t wait to begin exploring water with your child! Please do not hesitate to reach out with any questions or concerns!

Sincerely,
[Insert Activity Specialist’s Name and Contact Information]

Learning Outcomes

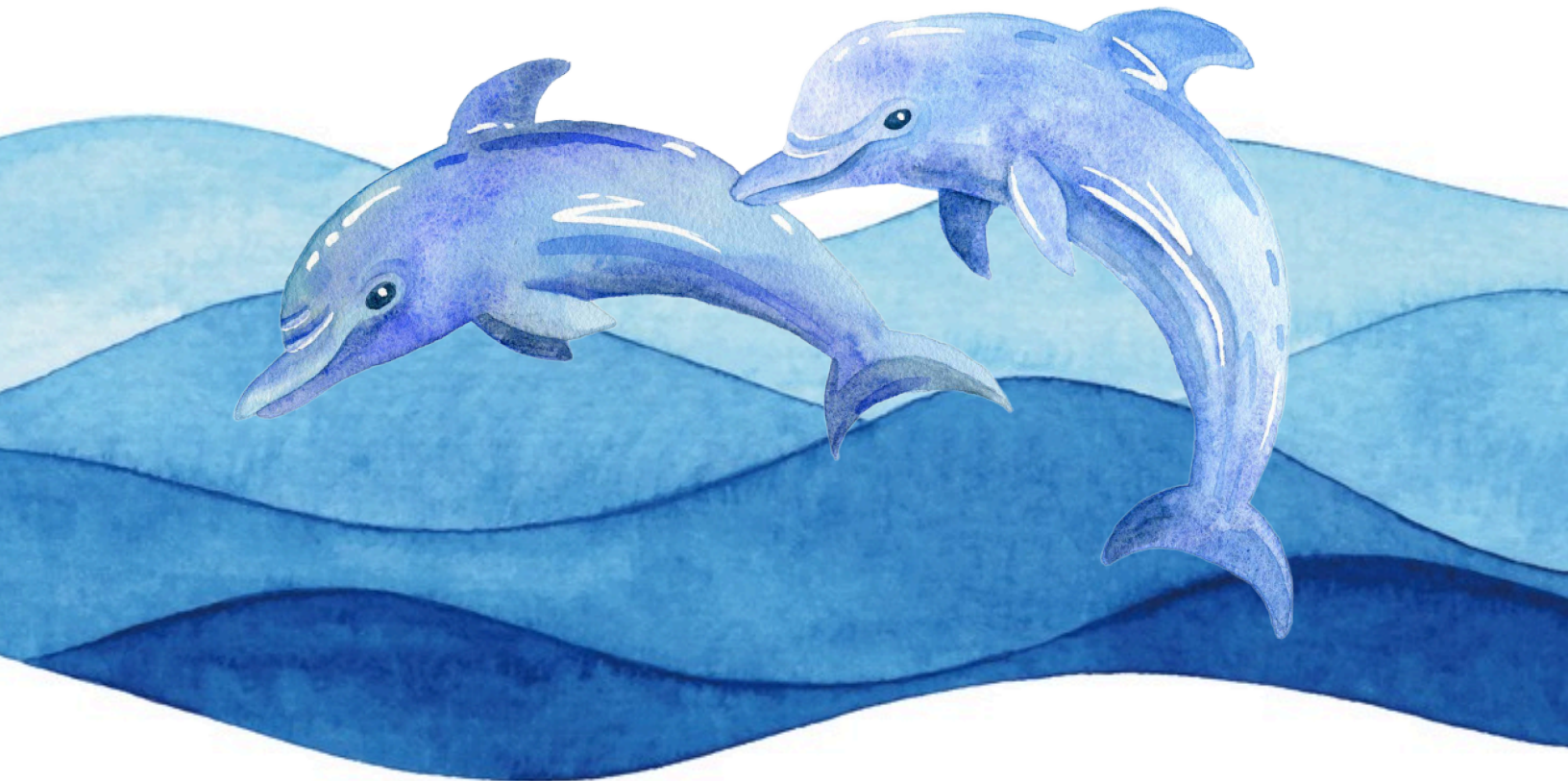
Essential Question	Enduring Understanding
How important is water?	All living things rely on water for survival. The amount of water on earth is finite so we must do our part to conserve and protect it for all people.

Standards <i>Which Standards will be addressed in this Experience?</i>
<p><u>NYS Science Standards:</u></p> <ul style="list-style-type: none"> • 3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. • 3-ESS2-3. Plan and conduct an investigation to determine the connections between weather and water processes in Earth systems. • 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment. <p><u>NYS ELA Standards:</u></p> <ul style="list-style-type: none"> • 3SL1: Participate and engage effectively in a range of collaborative discussions with diverse peers and adults, expressing ideas clearly, and building on those of others. • 3W6: Conduct research to answer questions, including self-generated questions, and to build knowledge. <p><u>NYSED SEL Benchmarks:</u></p> <ul style="list-style-type: none"> • 3A.2a. Demonstrate consideration for the safety and well-being of self and others.



Vocabulary

- **Freshwater:** water that is suitable for consumption
- **Scarce:** not plentiful
- **Abundant:** existing in large amounts
- **Aqueduct:** a human-made channel for transporting water
- **Reservoir:** a human-made lake where water is stored
- **Evaporation:** process by which water changes from a liquid to a gas; occurs when the sun transfers heat and energy to liquid water molecules causing them to speed up and break away and become a gas
- **Water Vapor:** water in a gas form
- **Condensation:** the process by which water vapor (or another gas) converts to a liquid.
- **Precipitation:** liquid or frozen water that forms in the atmosphere and falls back to the earth
- **River:** a body of water that flows downhill and empties into a larger body of water such as an ocean, lake, or another river.
- **Continent:** one of earth's continuous expanses of land (Africa, Antarctica, Asia, Australia, Europe, North America, South America).
- **Water Pollution:** water that is contaminated with harmful substances making it unsafe for use
- **Watershed:** an area of land where all water drains into the same place - a larger body of water such as a river, lake, or ocean.
- **Pervious Surface:** surfaces that can soak up water and filter it underground
- **Impervious Surface:** solid surfaces that do not allow water to penetrate and cause it to runoff instead
- **Stormwater Pollution:** pollution that is caused when heavy rainfall causes contaminants from the surrounding environment to wash into a body of water.
- **Green Infrastructure:** a term used to describe a variety of practices aimed at protecting the environment by building with nature (e.g. planting rain gardens, installing vegetation on roofs of buildings, etc.)
- **Rain Garden:** a type of green infrastructure designed to capture large amounts of stormwater and prevent Combined Sewer Overflow (CSO)



Culminating Project

Goal(s)	To increase awareness of the issue of stormwater pollution and educate the public about the role of bioswales in keeping New York's waterways clean.
Audience	Fellow community members
Situation	There are thousands of rain gardens throughout New York City. People walk by these structures every day and many do not know the critical role they play in reducing stormwater pollution. The New York City Department of Environmental Protection builds and maintains the city's rain gardens, but the surrounding community has an important role to play in ensuring these structures can operate effectively. You have been asked to help support the city's efforts to keep its waterways clean by educating the public about stormwater pollution and the role rain gardens play in mitigating this issue.
Product	A public exhibit that explains the causes of stormwater pollution, the impact of this pollution on the city's waterways, and how rain gardens help prevent this pollution.

Rubric				
	4	3	2	1
Content	Exhibit addresses the causes and impact of stormwater pollution as well as the role of rain gardens in preventing it. It addresses these topics accurately and thoroughly.	Exhibit addresses the causes and impact of stormwater pollution as well as the role of rain gardens in preventing it. It would benefit from additional details about one or more of the topics.	Exhibit addresses two out of three topics in columns 3 and 4 accurately. or Exhibit addresses all three topics; some of the information is inaccurate.	Exhibit addresses one or none of three topics in columns 3 and 4 accurately. or Exhibit addresses all three topics; all of the information is inaccurate.
Design	Exhibit includes words <i>and</i> images to communicate content. Images and words are well organized, visually appealing, and designed intentionally to enhance audience understanding.	Exhibit includes words <i>and</i> images to communicate content. Images and words are organized and visually appealing.	Exhibit includes words <i>or</i> images to communicate content. Content would benefit from organization and/or elements to enhance the visual appearance.	Exhibit includes words <i>or</i> images to communicate content. Content is presented in a way that makes it challenging for audience members to understand.
Collaboration	All team members played an active role in creating the exhibit. All team members supported one another and solved problems positively and collaboratively.	All team members played an active role in creating the exhibit. Most team members supported one another and solved problems positively and collaboratively.	Some team members played an active role in creating the exhibit. Some team members supported one another and solved problems positively and collaboratively.	Team members did not play an active role in creating the exhibit. Teammates did not support one another or solve problems positively and collaboratively.

Lesson 1

Essential Question	How important is water?
Learning Objective(s)	<p>Students will be able to...</p> <ul style="list-style-type: none"> • explain the differences between freshwater and saltwater. • recall prior knowledge about water. • Identify what they wish to learn about water.
Materials	<ul style="list-style-type: none"> • Experience Slide Deck. Make a copy of the slide deck and save it to your computer so that you can type into it during the lesson. You will use this slide deck to present content to students every lesson. • Thought Experiment, printed copy for the teacher only • Materials for the Activity <ul style="list-style-type: none"> ○ 5-gallon bucket ○ 2-cup transparent measuring cup ○ 1-cup transparent measuring cup ○ 1 eyedropper
Vocabulary	<ul style="list-style-type: none"> • Freshwater: water that is suitable for consumption • Scarce: not plentiful • Abundant: existing in large amounts
Begin Instruction	
Hook	<p>Thought Experiment</p> <p>Today we are going to begin a brand new Experience. I'm excited to share the topic of our new Experience with you, but before I do, we're going to hear a true story, think through some scenarios related to the story, and have a discussion.</p> <p><i>Read aloud the story on this Thought Experiment Document. Pause at three specific points in the story (pausing points are identified in the document) to pose the following questions:</i></p> <ol style="list-style-type: none"> 1. <i>Imagine you were in a boat on the ocean. What problems would you face? Why?</i> 2. <i>How do you think Jose Alvarenga got enough freshwater to survive?</i> 3. <i>Imagine if water suddenly became something you did have to worry about finding. How would your life be different?</i> <p>I really enjoyed thinking about and discussing those scenarios with you! Have you guessed what our new Experience will be all about? You're right! Over the next several weeks we will be exploring water!</p> <p>Reveal the Essential Question</p> <p><i>Display the Essential Question (in the slide deck or on chart paper)</i></p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><i>How important is water?</i></p> </div> <p>This is the big question that we will be working to answer throughout this Experience. To answer this question we are going to read books, watch videos, do experiments, and even go on a field trip! As we learn more about this topic, our answer to this question will grow and change, and at the end of this Experience we will get to show what we have learned by doing a project.</p>

Teach/Demo	<p>Activity: Can You Spare a Drop?</p> <p>Now that we have learned a little bit about the difference between freshwater and saltwater, we are going to do an activity to help us better understand the amount of freshwater on earth.</p> <p>Follow the steps outlined in this activity document. The activity can be found in the slide deck. After completing the activity with students pose and discuss the following questions:</p> <ol style="list-style-type: none"> 1. Were you surprised at how little water is available for human use? 2. Would you call water a scarce or abundant resource? Why? 3. What do we need/use water for?
Independent Practice	<p>Video</p> <p>Now let's watch a short video to summarize our learning today.</p> <p>Show this video to the class. The video can be found in the slide deck.</p>
Share	<p>Create a KWL Chart</p> <p>Display a KWL chart (in the slide deck or on chart paper). Transition students from their tables back to the carpet.</p> <p>Now that you have had some time to think about and learn about water, we are going to make a KWL chart, a chart that lists things that we already know about the topic, things we want to know about the topic, and over time we can begin to add things we have learned about our topic. We always make a KWL at the start of every new Experience to help capture our learning.</p> <p>Facilitate a discussion about what students already know about water (K) and what they want to know about water (W), and what they learned today (L). At the end of this activity, read the entire chart aloud to the class.</p> <p>I hope you enjoyed the first day of our new Experience as much as I did! I can't wait to continue learning about water with each and every one of you as we work together to understand how important this resource truly is.</p>
Link	<p>Today we learned that we will be studying water in a quest to figure out how important water truly is. We also learned the difference between salt water and fresh water and got to see how little of earth's water is fresh water available for us to use.</p>
Exit Ticket	<p>Ask students to write a response to the following prompt or question in their journal. Collect each student's journal and review their response before the next class meeting.</p> <ul style="list-style-type: none"> • What are you looking forward to learning or doing during this Experience?
Standards	<p>3SL1: Participate and engage effectively in a range of collaborative discussions with diverse peers and adults, expressing ideas clearly, and building on those of others.</p> <p>3A.2a. Demonstrate consideration for the safety and well-being of self and others.</p>
Extension	n/a

Lesson 2

Essential Question	How important is water?					
Learning Objective(s)	Students will be able to... <ul style="list-style-type: none">• explain where New York City’s water comes from.• describe the process of ensuring that the water of NYC is safe to drink.					
Materials	<ul style="list-style-type: none">• Experience Slide Deck.• Notebooks, one per student• Materials for the Experiment:<ul style="list-style-type: none">○ Simulated wastewater (for one gallon add ½ cup of coffee grounds, some cooking oil, grass clippings, shredded newspaper, etc.)○ Empty .5 Liter Plastic Bottles (2 per group)○ Scissors○ Coffee Filter○ Filter Materials (clean sand, clean aquarium gravel, cotton balls, uncooked macaroni)○ Cups or spoons to scoop filter materials.○ Stopwatch (one per group)○ Notebook to record observations.					
Vocabulary	<ul style="list-style-type: none">• Aqueduct: a human-made channel for transporting water• Reservoir: a human-made lake where water is stored					
Begin Instruction						
Hook	<p>Connection</p> <p><i>Prepare to display the Essential Question (in the slide deck or on chart paper) but keep it covered at the start of the lesson.</i></p> <p>Last time we started exploring water by engaging in a thought experiment, participating in an activity, and watching a video. It was the first step on our journey to answer our big question. Who remembers what the big question we are trying to answer?</p> <p><i>Have students turn and talk to share what they think with a partner. Then uncover the Essential Question (in the slide deck or on chart paper) for students to see.</i></p> <p>That’s right! We are trying to answer the question, “How important is water?” Today we are going to continue learning about water. We will learn about where New York City’s water comes from.</p>					
Teach/Demo	<p>Video</p> <p>Let’s watch a video all about New York City’s water.</p> <p>Show this video embedded in the slide deck. Pause the video to discuss the following key points or engage the class in a discussion of key points at the end.</p> <table><tr><th>Time Stamp</th><th>Key Point</th></tr><tr><td>3:49</td><td>Even though Manhattan is surrounded by rivers, the rivers are so close to the ocean that they are actually too salty to be a source of drinking water. Because of this, back when the city was just forming, people got fresh water from ponds and springs and from wells (which used ground water).</td></tr></table>		Time Stamp	Key Point	3:49	Even though Manhattan is surrounded by rivers, the rivers are so close to the ocean that they are actually too salty to be a source of drinking water. Because of this, back when the city was just forming, people got fresh water from ponds and springs and from wells (which used ground water).
Time Stamp	Key Point					
3:49	Even though Manhattan is surrounded by rivers, the rivers are so close to the ocean that they are actually too salty to be a source of drinking water. Because of this, back when the city was just forming, people got fresh water from ponds and springs and from wells (which used ground water).					

		But, because New York City didn't have a sewer system yet, people put their waste in the streets or waterways.
	4:45	The city needed a fresh water source that wasn't contaminated. It began to build a system to get water from the Croton River in Westchester County, a little less than 50 miles away, to reservoirs in Manhattan. This solved a lot of problems the city was having in terms of public health and safety.
	6:24	When the five boroughs consolidated to form The City of Greater New York by the end of the 19th century, the population began to grow and the city needed to find more water. The city began to take over towns in upstate New York and flood them to create sources of water for the city. It eventually became the Catskill Delaware watershed system. Today this is where 90% of New York City's water comes from.
	8:48	New York City's water is treated in water treatment facilities with chlorine, fluoride, phosphoric acid, and UV light. After the water is treated it makes its way to the city through a system of tunnels.
Independent Practice	<p>Experiment: Make Your Own Water Filter</p> <p>This video taught us that the NYC Department of Environmental Protection works hard to prevent contamination at the water's source. Now we will do an experiment to better understand the challenge of removing contaminants from water and discover what makes filtration systems most effective.</p> <p><i>Review the materials and steps of the experiment using the slide deck. Put students in small groups of 3-4. Give each group the materials needed to conduct the experiment and allow them to work on it in their groups. Circulate and provide support as needed.</i></p>	
Share	<p>Experiment Debrief</p> <p><i>Debrief the experiment by facilitating a class discussion about the following questions:</i></p> <ol style="list-style-type: none"> <i>1. What was the relationship between filtration time and the cleanliness of the filtered water?</i> <i>2. Which order of filter materials produced the cleanest water? Why do you think this might be?</i> <i>3. What did this experiment make you think about the importance of protecting New York City's water sources from contaminants?</i> 	
Link	Getting clean water to our city is no simple feat! Today we learned about where our water comes from and got to experience first-hand how challenging it can be to clean water that has been contaminated.	
Exit Ticket	<p>Ask students to write a response to the following prompt or question in their journal. Collect each student's journal and review their response before the next class meeting.</p> <ul style="list-style-type: none"> <i>Come up with your own "Two Truths and a Lie!" Based on what you learned today, write two truths and one lie about where New York City's tap water comes from.</i> 	
Standards	<p>5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.</p> <p>3SL1: Participate and engage effectively in a range of collaborative discussions with diverse peers and adults, expressing ideas clearly, and building on those of others.</p> <p>3A.2a. Demonstrate consideration for the safety and well-being of self and others.</p>	

Extension

Below are links to additional resources related to today's lesson. Please feel free to use these resources to extend student learning as time permits.

- [Video - The Simple Genius of NYC's Water Supply](#)
- [Video - Why Towns Were Lost Under New York's Water Reservoir](#)



Lesson 3

Essential Question	How important is water?
Learning Objective(s)	Students will be able to... <ul style="list-style-type: none"> explain how all of Earth's water is connected through the water cycle.
Materials	<ul style="list-style-type: none"> Experience Slide Deck. Materials for Experiment (one set for each small group): <ul style="list-style-type: none"> Experiment handout, one per student Large metal or plastic bowl Pitcher or bucket Sheet of clear plastic wrap Dry glass mug (like a coffee mug) Large rubber band Water
Vocabulary	<ul style="list-style-type: none"> Evaporation: process by which water changes from a liquid to a gas; occurs when the sun transfers heat and energy to liquid water molecules causing them to speed up and break away and become a gas Water Vapor: water in a gas form Condensation: the process by which water vapor (or another gas) converts to a liquid. Precipitation: liquid or frozen water that forms in the atmosphere and falls back to the earth
Begin Instruction	
Hook	<p>Today we're going to start our lesson by playing <i>The Water Molecule Game</i>. Water is made up of molecules. In this game, each person is a water molecule. Sometimes you will be a water molecule in the liquid state, sometimes you will be a water molecule in the solid state, and sometimes you will be a water molecule in the gas state. This is how water molecules behave in each state:</p> <ul style="list-style-type: none"> Solid Water Molecules move very slowly and stay packed close together. Liquid Water Molecules move more quickly. They stay close together and move past one another fluidly, but are not packed tight. Gas Molecules move around the most quickly. They do not touch except for when they bump into one another they bounce apart and do not maintain contact. <p><i>Have students stand up and find a spot in the room. As you call out different states (solid, liquid, gas) students should model those states by the way they move around the classroom.</i></p> <p>I hope you enjoyed learning about the states of water! Understanding how water changes from liquid, to solid, to gas is important to understanding something called the water cycle. Today we are going to learn all about the water cycle. This will help us answer our essential question: How important is water?</p>
Teach/Demo	<p>Video</p> <p>Now we are going to watch a video to learn about how all of earth's water is connected through the water cycle.</p> <p><i>Show this video to the class. The video can be found in the slide deck. Stop after 3 minutes of the video. The rest of the video, beyond the 3 minute mark, will be shown at the end of the lesson.</i></p>

	<p>Engage the class in a discussion of key points at the end of the video:</p> <table><tr><th>Time Stamp</th><th>Key Point</th></tr><tr><td>1:00</td><td>The water cycle is the term used to describe the way water cycles throughout the earth and the atmosphere, changing between states (solid, liquid, and gas) as it does.</td></tr><tr><td>1:25</td><td>Evaporation is when the sun sends its energy down to the earth, heating bodies of water like oceans and lakes until the sun's energy causes some of the liquid water to turn into a gas called water vapor.</td></tr><tr><td>2:00</td><td>As water vapor rises, it begins to cool down. When it cools, the water molecules stick together along with dust forming drops of liquid water in what we know as clouds. This is called condensation.</td></tr><tr><td>2:29</td><td>When enough water particles in a cloud stick together, the water begins to fall back down to the earth. This is called precipitation.</td></tr></table>	Time Stamp	Key Point	1:00	The water cycle is the term used to describe the way water cycles throughout the earth and the atmosphere, changing between states (solid, liquid, and gas) as it does.	1:25	Evaporation is when the sun sends its energy down to the earth, heating bodies of water like oceans and lakes until the sun's energy causes some of the liquid water to turn into a gas called water vapor.	2:00	As water vapor rises, it begins to cool down. When it cools, the water molecules stick together along with dust forming drops of liquid water in what we know as clouds. This is called condensation.	2:29	When enough water particles in a cloud stick together, the water begins to fall back down to the earth. This is called precipitation.
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2:29	When enough water particles in a cloud stick together, the water begins to fall back down to the earth. This is called precipitation.										
Independent Practice	<p>Experiment: Make a Mini Water Cycle</p> <p>Now it's time to take what we learned about the water cycle and apply it by making our own mini water cycle models!</p> <p>Review the materials and steps of the experiment using the slide deck. Put students in small groups of 3-4. Give each group the materials needed to conduct the experiment and allow them to work on it in their groups. Circulate and provide support as needed.</p>										
Share	<p>Experiment Debrief</p> <p>Debrief the experiment by facilitating a class discussion about the following questions:</p> <table><tr><td>What did you observe?</td><td>Why did this happen? What part of the water cycle does it represent?</td></tr><tr><td></td><td></td></tr></table>	What did you observe?	Why did this happen? What part of the water cycle does it represent?								
What did you observe?	Why did this happen? What part of the water cycle does it represent?										
Link	<p>Today we learned how all of the world's water is connected through a process called the water cycle. It's amazing to think about the fact that the water we drink today could have once been part of a river halfway around the world!</p>										
Exit Ticket	<p>Ask students to write a response to the following prompt or question in their journal. Collect each student's journal and review their response before the next class meeting.</p> <ul style="list-style-type: none">Draw a diagram of the water cycle that shows how water moves through the hydrosphere changing from a liquid, to a gas, and back into a liquid (or solid!) again. Label your diagram with the words below as well as any others you may need to describe the process:<ul style="list-style-type: none">EvaporationCondensationPrecipitation										
Standards	<p>3-ESS2-3. Plan and conduct an investigation to determine the connections between</p>										

	<p>weather and water processes in Earth systems.</p> <p>3SL1: Participate and engage effectively in a range of collaborative discussions with diverse peers and adults, expressing ideas clearly, and building on those of others.</p> <p>3A.2a. Demonstrate consideration for the safety and well-being of self and others.</p>
Extension	<p><i>Below are links to additional resources related to today's lesson. Please feel free to use these resources to extend student learning as time permits.</i></p> <ol style="list-style-type: none"> 1. Website - Interactive Water Cycle 2. Activity - My Life as a Drop Storyboard 3. Video - The Water Cycle 4. Kinesthetic Activity - Be the Molecule 5. NEWSLA Water Cycle Article - English 6. NEWSLA Water Cycle Article - Spanish



Lesson 4

Essential Question	How important is water?
Learning Objective(s)	<p>Students will be able to...</p> <ul style="list-style-type: none"> • conduct research about one of the world's longest rivers by engaging with texts and videos online. • present their findings to their peers.
Materials	<ul style="list-style-type: none"> • Experience Slide Deck. • Where on Earth Are Rivers? • Computer and access to Discovery Education for each student (or pair of students) in your class. • Research Activity Sheet, one per student
Vocabulary	<ul style="list-style-type: none"> • River: a body of water that flows downhill and empties into a larger body of water such as an ocean, lake, or another river. • Continent: one of earth's continuous expanses of land (Africa, Antarctica, Asia, Australia, Europe, North America, South America).
Begin Instruction	
Hook	<p>Did you know there are 165 major rivers in the world? The longest river, the Nile River, is over 4,000 miles long! New York City has four rivers, the Hudson River, the East River, the Harlem River, and the Bronx River.* Have you ever spent time near one of these rivers in our city? What did you notice?</p> <p>Today we are going to learn about some of the most famous rivers in the world. This will help us answer our essential question: How important is water?</p> <p>*Technically the Harlem River is an estuary connecting the Hudson River to the East River.</p>
Teach/Demo	<p>Read Aloud</p> <p>We know that the water cycle moves our planet's water between the earth's surface and atmosphere, and that water that was once halfway around the world could end up right here in New York City! Today we're going to read a book about some of the most famous rivers in the world to help us get to know water sources near and far!</p> <p><i>Read aloud pages 4-11 and then pages 30-31 this book to the class. The book can be found in the slide deck.</i></p> <p>Research Introduction</p> <p><i>Tell students that they will get to select one of the three longest rivers in the world to research on their own. They will conduct their research on the Discovery Education Website. They can select one of the following rivers to explore:</i></p> <p><i>Nile (Africa)</i> <i>Amazon (South America)</i> <i>Yangtze (Asia)</i></p> <p>Note: <i>New York Edge has a license with Discovery Education and all staff members have logins. If you have not used Discovery Education before, please reach out to your Site Director and make sure you have login credentials well in advance of this lesson.</i></p>

Independent Practice	Activity: Researching Rivers Show students how to login to Discovery Education and how to search topics on the website. Review the Research Activity Sheet with students. As students begin their research, circulate and check in on their progress, answering questions and providing support as needed.
Share	Research Share Put students in groups of three, so that each river is represented in the group. Give students time to share their findings with one another. After all students have had an opportunity to share, bring the entire class back together and pose the following questions for a class discussion: <ol style="list-style-type: none"> 1. In what ways were the rivers that you and your group-mates researched similar? In what ways were they different? 2. What surprised you about one of these rivers? 3. What do you want to know more about?
Link	Today we learned about the characteristics of rivers and why they are important. We also learned interesting facts about three of the longest rivers in the world!
Exit Ticket	Ask students to write a response to the following prompt or question in their journal. Collect each student's journal and review their response before the next class meeting. <ul style="list-style-type: none"> • You learned about three of the world's longest rivers today! If you could visit one of these rivers, which one would you choose and why?
Standards	3SL1: Participate and engage effectively in a range of collaborative discussions with diverse peers and adults, expressing ideas clearly, and building on those of others. 3W6: Conduct research to answer questions, including self-generated questions, and to build knowledge. 3A.2a. Demonstrate consideration for the safety and well-being of self and others.
Extension	n/a



Lesson 5

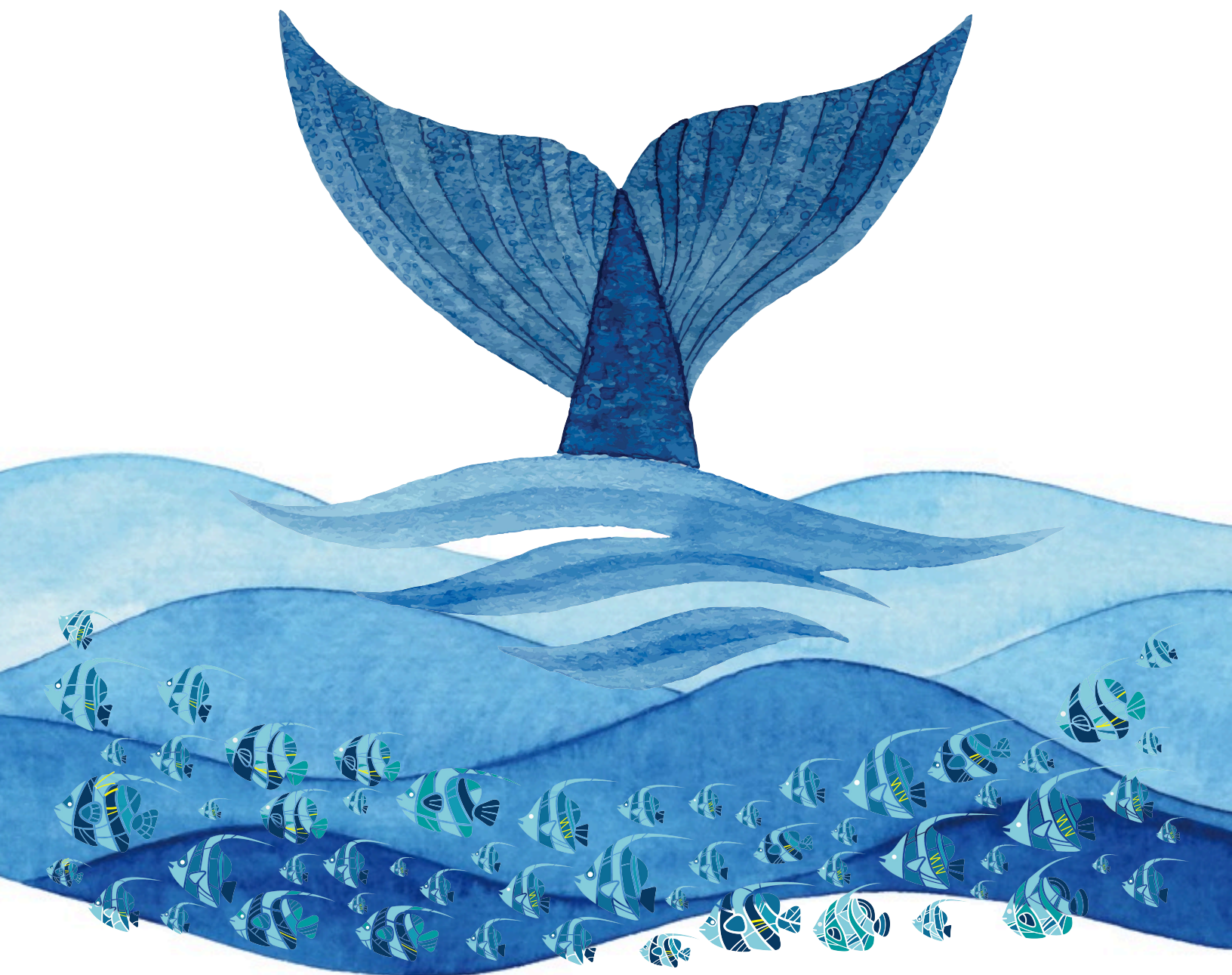
Essential Question	How important is water?						
Learning Objective(s)	Students will be able to... <ul style="list-style-type: none"> describe at least three factors that contribute to water pollution. 						
Materials	<ul style="list-style-type: none"> Experience Slide Deck. Materials for the Activity: <ul style="list-style-type: none"> A set of 2 clear cups with water in them, one set per partnership. Several bottles of food coloring Several small cups of white vinegar. Several small cups of salt Several small cups of oil 						
Vocabulary	<ul style="list-style-type: none"> Water Pollution: water that is contaminated with harmful substances making it unsafe for use 						
Begin Instruction							
Hook	<p>You have probably heard of pollution. The main types of pollution are air pollution, land pollution, and water pollution. When you hear the term “water pollution” what does it make you think about? Turn and talk with a partner.</p> <p>Today we are going to learn about water pollution. This will help us answer our essential question: How important is water?</p>						
Teach/Demo	<p>Video</p> <p>We have spent the past several weeks learning about how important freshwater is to the survival of all living things, and what a small amount is actually available to us on our planet. Last time we met we learned a lot about one source of freshwater, rivers, around the world. We know that protecting our freshwater supply is critical. Unfortunately, water pollution is a significant problem. Let’s watch this video to learn more about what causes water pollution.</p> <p>Show this video embedded in the slide deck. Pause the video to discuss the following key points or engage the class in a discussion of key points at the end.</p> <table border="1"> <thead> <tr> <th>Time Stamp</th><th>Key Point</th></tr> </thead> <tbody> <tr> <td>1:45</td><td>Water pollution is dirty, unsafe water. It can’t be used for drinking because it can make you sick. Sometimes you can see pollution, such as large pieces of trash, but other times you cannot see pollution, such as some chemicals.</td></tr> <tr> <td>2:35</td><td> <p>There are different causes of pollution:</p> <ul style="list-style-type: none"> Natural causes (e.g the eruption of a volcano, silt from storms and floods) Human activities (e.g. sewage, fertilizers from farms, chemicals, trash) <p>Sometimes the pollution is poured directly into water sources. Other times rainwater carries pollution into water sources.</p> </td></tr> </tbody> </table>	Time Stamp	Key Point	1:45	Water pollution is dirty, unsafe water. It can’t be used for drinking because it can make you sick. Sometimes you can see pollution, such as large pieces of trash, but other times you cannot see pollution, such as some chemicals.	2:35	<p>There are different causes of pollution:</p> <ul style="list-style-type: none"> Natural causes (e.g the eruption of a volcano, silt from storms and floods) Human activities (e.g. sewage, fertilizers from farms, chemicals, trash) <p>Sometimes the pollution is poured directly into water sources. Other times rainwater carries pollution into water sources.</p>
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	<div>5:24</div> <div> <p>Not everyone around the world has safe, clean drinking water. People can help prevent water pollution by doing the following things:</p> <ul style="list-style-type: none"> • Do your best to conserve (not waste) water by using less at home when you can. • Make sure your trash makes its way into a garbage bin or recycling bin and not into a water source. • Use less plastic when possible (e.g. bring reusable bags to the grocery store, avoid plastic straws) • Don't put paint, oil, medicines, or chemicals down drains. • Plant more trees and flowers. </div>
Independent Practice	<p>Activity: Different Types of Water Pollution</p> <p><i>Remind students that in the video they learned that some water pollution is visible, but other water pollution is not. Today they will do an activity to represent these two different types of water pollution.</i></p> <p><i>Follow the steps on this document to facilitate this activity. This activity is also embedded in the slide deck. Don't forget to set up the materials in advance.</i></p> <ol style="list-style-type: none"> 1. Ask the class to brainstorm types of water pollution that are visible. Write their ideas on the board (e.g. plastic bottles, plastic bags, oil spill, trash) 2. Ask the class to brainstorm types of water pollution that are invisible. Write their ideas on the board (e.g. some chemicals may dissolve into water and not be visible, microscopic pieces of plastic) 3. Provide each partnership with two clear cups of water. Tell them that their job is to create two different samples of polluted water. One sample with pollution that is visible, and another sample with pollution that is invisible. 4. Allow students to use the materials provided in a central location to create their two samples.
Share	<p>Activity Debrief</p> <p><i>Facilitate a whole class discussion about the following two questions:</i></p> <ol style="list-style-type: none"> 1. <i>What did this simulation make you think about the challenges of preventing water in our everyday lives?</i> 2. <i>What did this simulation make you think about the challenges of cleaning up water pollution in our everyday lives?</i>
Link	Today we learned about the causes of water pollution, as well as some ways we can help prevent it.
Exit Ticket	<p>Ask students to write a response to the following prompt or question in their journal. Collect each student's journal and review their response before the next class meeting.</p> <ul style="list-style-type: none"> • <i>Based on what you learned about the causes of water pollution, what do you think are the biggest sources of water pollution in your own community? What makes you think this?</i>
Standards	<p>5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.</p> <p>3SL1: Participate and engage effectively in a range of collaborative discussions with diverse peers and adults, expressing ideas clearly, and building on those of others.</p> <p>3A.2a. Demonstrate consideration for the safety and well-being of self and others.</p>

Extension

Below are links to additional resources related to today's lesson. Please feel free to use these resources to extend student learning as time permits.

- [Article - Water Pollution: Everything You Need to Know](#)



Lesson 6

Essential Question	How important is water?						
Learning Objective(s)	<p>Students will be able to...</p> <ul style="list-style-type: none"> define a watershed. explain how stormwater pollution travels through a watershed. 						
Materials	<ul style="list-style-type: none"> Experience Slide Deck. Materials for the Activity: <ul style="list-style-type: none"> 1 Piece of white computer paper, one per student Spray bottle full of clean water, enough for 2-3 students to share Washable, water-based markers (such as Crayola), one per student Foil pan, one per student Scotch tape 						
Vocabulary	<ul style="list-style-type: none"> Watershed: an area of land where all water drains into the same place - a larger body of water such as a river, lake, or ocean. Pervious Surface: surfaces that can soak up water and filter it underground Impervious Surface: solid surfaces that do not allow water to penetrate and cause it to runoff instead Stormwater Pollution: pollution that is caused when heavy rainfall causes contaminants from the surrounding environment to wash into a body of water. 						
Begin Instruction							
Hook	<p>Do you remember the last big rainfall we had in the city? Close your eyes and try to picture it. What did the sidewalks look like? What did the streets look like? What about the sewers along the curb? Hold onto this mental image, it will help you better understand our lesson today.</p> <p>Today we are going to learn about a specific type of water pollution called stormwater pollution. This will help us answer our essential question: How important is water?</p>						
Teach/Demo	<p>Video Let's watch a video to learn about watersheds and water pollution.</p> <p>Show this video embedded in the slide deck. Pause the video to discuss the following key points or engage the class in a discussion of key points at the end.</p> <table border="1"> <thead> <tr> <th>Time Stamp</th><th>Key Point</th></tr> </thead> <tbody> <tr> <td>0:58</td><td> <p>A watershed is an area of land where all water drains into the same place - a larger body of water such as a river, lake, or ocean.</p> <p>When precipitation lands in a watershed it can encounter pervious or impervious surfaces. Pervious surfaces soak up water and filter it underground (e.g. grass, soil, and sponges). Impervious surfaces are solid surfaces that don't let the water soak into the ground, forcing it to run off (e.g. road, roof, car windshield)</p> </td></tr> <tr> <td>1:41</td><td>Stormwater occurs when rain lands on an impervious surface and flows downhill, picking up pollution along the way until it runs into a water source</td></tr> </tbody> </table>	Time Stamp	Key Point	0:58	<p>A watershed is an area of land where all water drains into the same place - a larger body of water such as a river, lake, or ocean.</p> <p>When precipitation lands in a watershed it can encounter pervious or impervious surfaces. Pervious surfaces soak up water and filter it underground (e.g. grass, soil, and sponges). Impervious surfaces are solid surfaces that don't let the water soak into the ground, forcing it to run off (e.g. road, roof, car windshield)</p>	1:41	Stormwater occurs when rain lands on an impervious surface and flows downhill, picking up pollution along the way until it runs into a water source
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1:41	Stormwater occurs when rain lands on an impervious surface and flows downhill, picking up pollution along the way until it runs into a water source						

		such as a stream, river, or lake.
	2:26	<p>We can prevent stormwater pollution by doing the following things:</p> <ul style="list-style-type: none"> • Not littering • Using less chemicals • Replacing impervious surfaces with pervious surfaces by planting trees, removing asphalt, and replacing it with bioswales.
Independent Practice	<p>Activity: Model Watershed</p> <p>Today we are going to create our own watersheds. Remember, a watershed is an area of land where water flows to a common point. We are in a watershed right now! We are in a classroom, in a building that is sitting on an area of land. If it was raining outside right now, the water would flow to a common point. You can be in a watershed anywhere on earth, as long as you're standing on land!</p> <p>We're going to see exactly what this looks like by creating our own watershed. You may even find that you create several different watersheds!</p> <p>Follow the steps on this document to facilitate this activity. Make sure the materials are set up in advance.</p>	
Share	<p>Activity Debrief</p> <p>Facilitate a whole class discussion about the following two questions:</p> <ol style="list-style-type: none"> 1. Did your land have multiple watersheds? How do you know? 2. How did what you observed about the flow of rainwater in your model connect to what you learned about stormwater pollution from the video? <p>Answers:</p> <ol style="list-style-type: none"> 1. Answers will vary, but most likely students will see that there was at least two different watersheds in their area of land. They may have one or more lakes, places where the water pooled due to being surrounded by land on all sides, and they may have one or more streams or rivers, places where the water flowed all the way into the pan (which represents water flowing into the ocean). Each place where water flowed into a single source (a lake, river, or ocean) is a watershed! 2. Answers will vary. Students may say that their models helped them see how pollution on land within a watershed can make its way into a lake, stream, river, or even ocean. They may make the connection between a piece of trash on the street and the pollution occurring in their local river. 	
Link	<p>Today we learned that a watershed is an area of land where water flows to a common point. We also learned that stormwater pollution is a big source of pollution in a watershed.</p>	
Exit Ticket	<p>Ask students to write a response to the following prompt or question in their journal. Collect each student's journal and review their response before the next class meeting.</p> <ul style="list-style-type: none"> • Pretend someone asked you to explain how stormwater pollution occurs. What would you say? Make sure to use the following words or phrases in your explanation: <ul style="list-style-type: none"> ○ Watershed ○ Pervious surfaces ○ Impervious surfaces 	
Standards	<p>5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.</p> <p>3SL1: Participate and engage effectively in a range of collaborative discussions with diverse</p>	

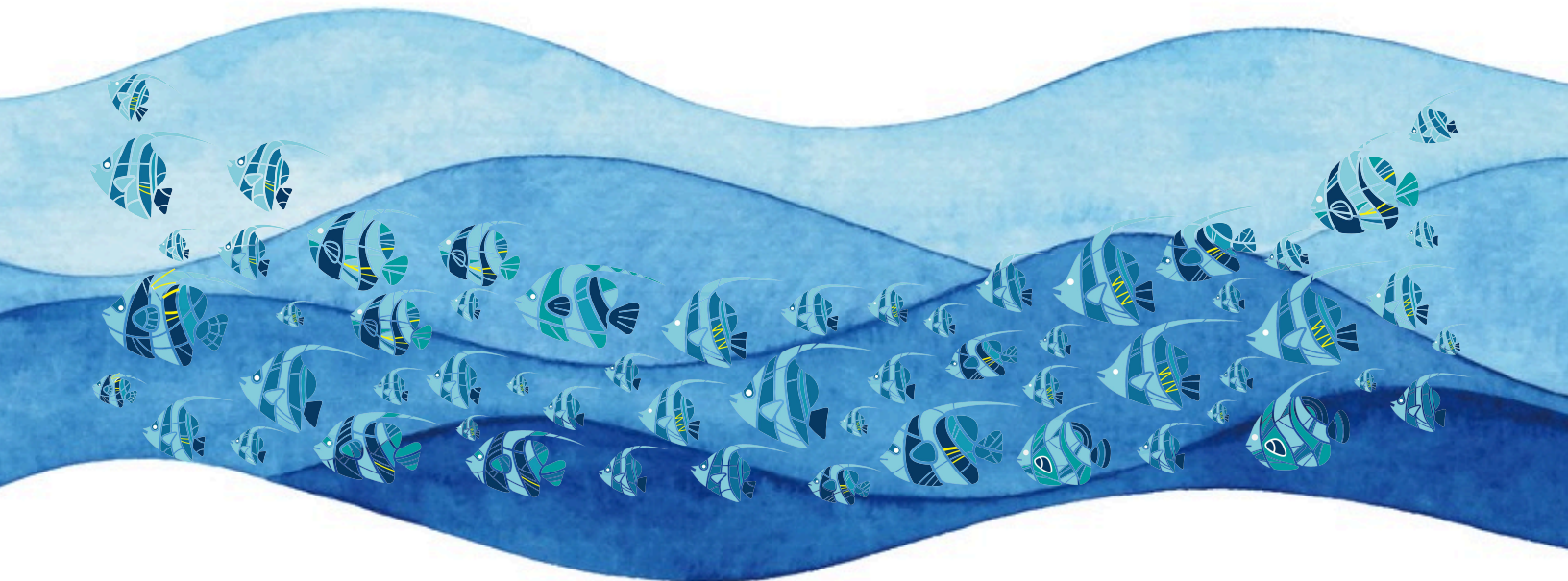
	peers and adults, expressing ideas clearly, and building on those of others. 3A.2a. Demonstrate consideration for the safety and well-being of self and others.
Extension	n/a



Lesson 7

Essential Question	How important is water?
Learning Objective(s)	Students will be able to... <ul style="list-style-type: none"> • identify at least one way to prevent stormwater pollution in their community.
Materials	<ul style="list-style-type: none"> • Experience Slide Deck. • Article, one copy per student • Notebooks, one per student
Vocabulary	<ul style="list-style-type: none"> • Green Infrastructure: a term used to describe a variety of practices aimed at protecting the environment by building with nature (e.g. planting rain gardens, installing vegetation on roofs of buildings, etc.)
Begin Instruction	
Hook	<p>People are working to make positive change in their communities all of the time. Can you think of a positive change that was made in your community recently? Maybe neighbors got together to plant a community garden, maybe the Parks Department installed new equipment at a park, maybe there was a food drive at the local community center. Now think, how did that positive change happen? Who was involved and how did they accomplish their goal? Turn and talk with a partner.</p> <p>Today we are going to learn about ways to prevent stormwater pollution. This will help us answer our essential question: How important is water?</p>
TeachDemo	<p>Shared Reading</p> <p>Let's read an article to learn more about the issue of stormwater pollution and some solutions to this problem.</p> <p><i>Distribute copies of this text to students. Call on volunteers to read aloud while the rest of the class follows along. The article can also be found on the slide deck.</i></p> <p><i>Facilitate a class discussion about the article by posing the following questions:</i></p> <ul style="list-style-type: none"> • <i>What are some examples of the types of things rainwater can pick that can pollute the water it eventually flows into? Which of these things do you see in your own community? Are there other things in your community that rain may come in contact with that could contribute to stormwater pollution?</i> • <i>Have you seen any evidence of the stormwater solutions in this article in your own community?</i>
Independent Practice	<p>Activity: Neighborhood Walk</p> <p>Now we are going to have an opportunity to see if any of these solutions to stormwater pollution are being implemented in our own community. We are going to take a walk in the neighborhood, around the perimeter of our school, to look out for solutions mentioned in the article. As we walk we will look for evidence of:</p> <ul style="list-style-type: none"> • Trash capture technologies • Trash cans for public use • Poop scooping stations with plastic bags for people to use for pet waste • Green infrastructure such as rain barrels, rain gardens (also known as bioswales) and efforts to increase the tree canopy. <p>We will each bring a notebook with us so we can sketch and/or take notes on any</p>

	stormwater solutions we may find.
Share	<p>Activity Debrief</p> <p><i>Facilitate a whole class discussion about the following two questions:</i></p> <ol style="list-style-type: none"> <i>1. Did you see any evidence of efforts to prevent stormwater pollution on our neighborhood walk? If so, what were they? If not, what solutions would you like to see implemented?</i> <i>2. Did you see anything in our community that might contribute to stormwater pollution? If so, what ideas do you have about addressing the issues you observed?</i>
Link	Today we learned about ways to prevent stormwater pollution and spent time in our own community looking for evidence of these solutions.
Exit Ticket	<p>Ask students to write a response to the following prompt or question in their journal. Collect each student's journal and review their response before the next class meeting.</p> <ul style="list-style-type: none"> <i>Which solution to stormwater pollution do you think would be most challenging to implement and why?</i> <ul style="list-style-type: none"> <i>Trash capture technologies</i> <i>Changing peoples' behaviors</i> <i>Green infrastructure</i>
Standards	<p>3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</p> <p>3SL1: Participate and engage effectively in a range of collaborative discussions with diverse peers and adults, expressing ideas clearly, and building on those of others.</p> <p>3A.2a. Demonstrate consideration for the safety and well-being of self and others.</p>
Extension	<p><i>Below are links to additional resources related to today's lesson. Please feel free to use these resources to extend student learning as time permits.</i></p> <ul style="list-style-type: none"> Video - Baltimore Harbor EcoTour



Lesson 8

Essential Question	How important is water?								
Learning Objective(s)	Students will be able to... <ul style="list-style-type: none"> explain how rain gardens, or bioswales, help prevent stormwater pollution. 								
Materials	<ul style="list-style-type: none"> Experience Slide Deck. Materials for the Activity <ul style="list-style-type: none"> Activity document, printed in color, one per student Colored pencils, one set per student Scissors, one per student Glue stick, one per student 								
Vocabulary	<ul style="list-style-type: none"> Rain Garden: a type of green infrastructure designed to capture large amounts of stormwater and prevent Combined Sewer Overflow (CSO) 								
Begin Instruction									
Hook	<p>Yesterday we learned about different types of green infrastructure that can help prevent stormwater pollution. After that lesson, did you notice any of these things on your commute home or in your own neighborhood? What did you see? Turn and talk with a partner.</p> <p>Today we are going to learn about one specific way to prevent stormwater pollution: planting rain gardens. This will help us answer our essential question: How important is water?</p>								
Teach/Demo	<p>Video Show this video embedded in the slide deck. Pause the video to discuss the following key points or engage the class in a discussion of key points at the end.</p> <table border="1"> <thead> <tr> <th>Time Stamp</th><th>Key Point</th></tr> </thead> <tbody> <tr> <td>0:12</td><td>Rain gardens are designed to capture large amounts of stormwater and prevent Combined Sewer Overflow (CSO). CSO is when water treatment plants are unable to handle the amount of water that enters the sewer system during large rain events and some of the water ends up overflowing directly into the city's waterways without being treated.</td></tr> <tr> <td>0:32</td><td>Most rain gardens in New York City are planted on the sidewalk and have curb cuts that divert runoff flowing down the street and absorbs that water into the garden itself.</td></tr> <tr> <td>end</td><td> In addition to preventing stormwater pollution, rain gardens have these other benefits: <ul style="list-style-type: none"> Improve air quality by producing oxygen Fight climate change by capturing and storing atmospheric carbon dioxide Greenery helps cool temperatures in the city Plants provide habitats to insects and birds </td></tr> </tbody> </table>	Time Stamp	Key Point	0:12	Rain gardens are designed to capture large amounts of stormwater and prevent Combined Sewer Overflow (CSO). CSO is when water treatment plants are unable to handle the amount of water that enters the sewer system during large rain events and some of the water ends up overflowing directly into the city's waterways without being treated.	0:32	Most rain gardens in New York City are planted on the sidewalk and have curb cuts that divert runoff flowing down the street and absorbs that water into the garden itself.	end	In addition to preventing stormwater pollution, rain gardens have these other benefits: <ul style="list-style-type: none"> Improve air quality by producing oxygen Fight climate change by capturing and storing atmospheric carbon dioxide Greenery helps cool temperatures in the city Plants provide habitats to insects and birds
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Independent Practice	Activity: Design Your Own Rain Garden								

	<p>Before a rain garden is planted, it first has to be designed! Today you will design your own rain garden. You will get to choose which plants you want to use, and how you want to arrange them in the garden by sketching your design on paper.</p> <p>Follow the steps on this document to facilitate this activity. Make sure the materials are set up in advance.</p>
Share	<p>Rain Garden Design Share</p> <p><i>Put students in small groups of 3-4 and give them time to share their designs with one another. Students should explain why they chose the specific plants that they did, and how they made decisions around the placement of components in their garden.</i></p>
Link	<p>Today we had the opportunity to learn more about rain gardens, a very important and effective way to prevent stormwater pollution in our community!</p>
Exit Ticket	<p>Ask students to write a response to the following prompt or question in their journal. Collect each student's journal and review their response before the next class meeting.</p> <ul style="list-style-type: none"> • <i>What design element did you see in another student's rain garden that you would want to incorporate into your own design?</i>
Standards	<p>3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</p> <p>3SL1: Participate and engage effectively in a range of collaborative discussions with diverse peers and adults, expressing ideas clearly, and building on those of others.</p> <p>3A.2a. Demonstrate consideration for the safety and well-being of self and others.</p>
Extension	<p><i>Below are links to additional resources related to today's lesson. Please feel free to use these resources to extend student learning as time permits.</i></p>



Lessons 9-14

The last three weeks of the Experience revolve around a culminating field trip and project. The table below outlines the sequence of activities as well as a suggested structure.

Lesson #	Activity	Suggested Structure / Notes
9	Prepare for the Field Trip	<p>Use today's lesson time to prepare students for the field trip they will go on later this week:</p> <ul style="list-style-type: none"> • Review field trip expectations and safety guidelines established by your site. • Show this video (also embedded in the slide deck) • Engage students in an activity or discussion to generate a list of the following; <ul style="list-style-type: none"> ○ Things they are excited to see. ○ Things they are excited to do. ○ Things they want to learn or find out. ○ Specific questions they want to pose to their host or guide at the trip site.
10	Field Trip to the Bronx River	<p>Students will take a field trip to the Bronx River. This field trip will help them connect everything they have learned about the importance of water to ways water is used in their own city. The Bronx River Alliance has several field trips that classes can choose from. Please work with your Site Director to plan and book a field trip with the Bronx River Alliance as far in advance of beginning this Experience as possible. Scroll down to the bottom of this webpage to view all field trip offerings and book your trip!</p>
11	Introduce the Culminating Project to Students	<p>Introduce the culminating project to students by explaining the project goal, audience, situation, and product. Then share and give each student a copy of the project rubric so that they know the criteria for their work. All of this information can be found in the slide deck and in the section of this Experience titled, "Culminating Project".</p> <p>Engage students in a brainstorming and planning session for their project where students walk away with the following questions answered:</p> <ul style="list-style-type: none"> • What information do we want to communicate? • How do we want to communicate it? (e.g. individual posters, a large mural, artifacts with descriptions like in a museum) • Who will be responsible for creating the things that we need for our exhibit? (e.g. will students each create something independently, will they work in small groups or teams on different components?)
12	Culminating Project Work Time	<p>Provide students with structured time to work on their culminating project. Circulate and support students as they work.</p>
13	Culminating Project Work Time	<p>Provide students with structured time to work on their culminating project. Circulate and support students as they work.</p>
14	Culminating Project Showcase	<p>Identify a date, time, and location for students to share their culminating project with an audience. You may want to rehearse elements of the showcase with students in advance.</p>