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| **Title**  | **The Water Cycle and the Quabbin (50 minutes)** |
| **Date** | **8/18/2016** |
| **Authors** | **Stephanie Isabelle, John Morrin, Kate O’Donnell, Erica Therrien** |
| **Subject Areas****Grade Level** | **Science, ELA, Social Studies****3rd Grade** |

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| **Content Curriculum Frameworks addressed in this lesson** | **Indicate each content CF with its number and details.****WIDA** Recall information from experiences or gather information from print and digital sources; take brief notes on sources and **sort** evidence into provided categories.**SS.3.3** Observe and describe local or regional historic artifacts and sites and generate questions about their function, construction and significance.**ELA.3.W.8** Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.**ELA.3.RI.7** Use information gained from illustrations (e.g. maps, photographs) and the words in the text to demonstrate understanding of the text (e.g., where, when, why and how key events occur). **ESS.10** Describe how water on earth cycles in different forms and in different locations, including underground and in the atmosphere. |
| **Specific Technology Standards addressed in this lesson** | **Indicate each Technology Standard with its number and details.** **ISTE 2**2. Design and Develop Digital Age Learning Experiences and Assessments Teachers design, develop and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills and attitudes identified in the ISTE Standards•S. a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity. b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning and assessing their own progress. c. Customize and personalize learning activities to address students’ diverse learning styles, working strategies and abilities using digital tools and resources. d. Provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching. |

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| **Learning Targets and Assessments** |
| Learning Targets* I can understand the water cycle using the Quabbin Reservoir as an example.
 | Assessments FOR Learning (formative)* Initial Activator- Inform teachers about students’ prior knowledge of the components of the water cycle.
* Observation- Teachers will be walking around checking for understanding, providing additional scaffolding with guided questions if needed.
* Participation- Through students oral participation in whole group and turn and talk activities, teachers can gauge student understanding.

Assessments OF learning (summative)* I can create a visual representation of how the Quabbin Reservoir fits into the water cycle.

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There are three phases to this lesson:

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| **INTRODUCTION of the lesson: Building engagement/setting purpose/activating prior knowledge….** |
| **Instructional Steps**1. **Activator:** Each group receives a set of unlabeled pictures: ocean, rain, river, lake, and Quabbin Reservoir, including a notecatcher for each student. Students are given 5 minutes to work collaboratively to fill out their notecatchers (I noticed, I am wondering). Teacher says, “Work with your group to fill in your notecatcher. What do you notice about all of these pictures? How do you think they are connected? Are they connected?” **5 minutes**
2. **Introduction of New Vocabulary:** Teacher pre-teaches new vocabulary introduced in the video using vocabulary protocol: Teacher says the word, students say the word, teacher says the definition, teacher uses word in a sentence, movement related to the word.

**evaporation:** when the sun heats up water in rivers or lakes or the ocean and turns it into vapor or steam. The water vapor or steam leaves the river, lake or ocean and goes into the air.**I left my cup of water out in the sun for 4 days and all of the water was gone. That is evaporation.****vapor:** fine bits (as of fog or smoke) floating in the air and clouding it.**The vapor floated off the lake in the morning.****sleet:** a mixture of snow and rain as well as raindrops that freeze on their way down from the clouds.**In the winter it will sometimes sleet and snow at the same time.****ocean**: vast body of salt water that covers almost ¾ of the Earth’s surface.**At the beach, people swim in the ocean.****reservoir**: tank used for collecting and storing a liquid (as water or oil) lake used to store water for community use.**In Holyoke, we have the Ashley Reservoir.****transport:** to move something from one place to another.**The bus is used to transport you to school in the morning.****aqueduct:** bridge-like structure that carries water from one location to another.**The aqueduct was made of brick.****5 minutes** | 1. Students are supported during the activator through intentional heterogeneous grouping including: students who are at/above grade level, students who are below grade level, ELLs (English Language Learners) and SWDs (Students With Disabilities).
2. Students are supported in the acquisition of new vocabulary through a vocabulary protocol that uses: speaking, listening, kinesthetic connection and visual aids.

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| **Transition to Content:****Mindfulness Exercise: (Our class took a field expedition to the Quabbin Reservoir, if this is not possible for your class, use the following language to describe the experience of going to the Quabbin Reservoir.)**Teacher leads students in a mindfulness exercise to begin the connection to the Quabbin.“I want to invite you to close your eyes and imagine that you are at the Quabbin Reservoir. You are looking at the water and it is so big that you can’t see to the other side. The water is dark blue and it is so deep that you cannot see the bottom. You see lots of trees and the blue sky. Remember the pictures that we looked at: ocean, rain, river, lake, and Quabbin. Remember the words we just learned about. Allow yourself to imagine where did all that water at the Quabbin come from? **Teacher pause for 2 minutes to allow think time for students**. Now, I invite you to open your eyes and learn about the Quabbin Reservoir and its place in the water cycle.” **(4 minutes)** | 1. Supports students’ learning by creating an additional curriculum access point.
2. Supports students with identified or unidentified language barriers or disabilities by allowing them the opportunity to create pictures in their minds based on spoken words.
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| **Scaffolding plans for the BODY of the instruction** |
| **Instructional Steps**1. Teacher introduces video: “We are going to watch a short video about the Quabbin Reservoir and its place in the water cycle. When we watch the video, use your notecatcher to help you keep track of important information. Your notecatcher is set up so that you can put all the parts of the water cycle in sequential order (the order it happens.) There is also a paper at your table with the script for the video that you may use if you prefer to read. It isn’t always easy to watch and take notes at the same time so watch first, fill in any notes you can, but you will have a chance to work with your group to fill in any information you missed.” **(1 minute)**
2. Watch the video one time. **(3 minutes)**
3. Take one more minute and work with the person next to you to fill in any ideas you may have missed. **(2-3 minutes)**

While students are finishing their notecatchers, teacher provides materials (chart paper, markers, rubrics and sticky notes) at each table for their visual representation of the water cycle. | **Differentiation**1. Viewing of the video is differentiated through the use of notecatchers with sentence stems for ELLs or any other students needing additional support.
2. Video is captioned to support visual learners as well as auditory learners.
3. Students are supported through collaborative talk and work to fill in any missing gaps.
4. Script for the video provides an additional visual support for students.
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| **END Synthesis: How will students synthesize their understanding?**  |
| **Instructional Steps** | **Differentiation** |
| Teacher says, “Working with your group, create your own visual representation of the water cycle and Quabbin’s place in it. Remember that you can use your notecatcher from the video, the word bank, the vocabulary list. One person from your group will share what you have learned. Each group will have one minute to share out.” **(10 minutes)**Each group is given 1 minute to share out their poster. **(1 minute per group, approximately 8 minutes depending on number of groups)****Final Thoughts:** Teacher says, “You all learned so many things today about the Quabbin and the water cycle. You have sticky notes at your table, you can take time later today to take a gallery walk and leave feedback on your classmates’ work. Remember how to leave feedback that would help support your peers. I have a great picture for you to share with your family and tell them all about what we learned today. Tonight when you go home, talk to whoever is at home: mom, dad, sisters, brothers, or grandparents. I want you to ask them if they leave the water running when they are doing the dishes? Do you leave the water running when you are brushing your teeth? What kinds of things do you pour down your drain? Any chemicals? Grease from cooking? How do you think those things might affect the water cycle? Are there things you and your family could change?”**(1 minute)**Teacher passes out color representation of water cycle. | 1. Students are supported through the use of their heterogeneous groupings: students who are at/above grade level, students who are below grade level, ELLs (English Language Learners) and SWDs (Students With Disabilities).
2. Students will have a student friendly rubric to guide their project.
3. Students are supported through the visual aid of a word bank to complete their project.
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Please include information on each of the following:

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| **Materials Required for this lesson:**Pictures of ocean, lake, river, rain, Quabbin (1 for each group)Notecatchers for initial activator (1 per student)Notecatchers for video (1 per student)Script from video (1 per student)Pencils/PensVocabulary List on chart paper (1 for display)Word Bank on chart paper (1 for display)Plain chart paper (1 per group)MarkersSticky notes for final project/gallery walkStudent friendly rubric (1 per group)Vocabulary cards (10 sets, 1 for lead teacher and 1 for each supporting teacher, 1 for each group)Color printout of water cycle (1 per student) |
| **Social Justice Orientation** Our final reflection asks students to consider the implications of their own water usage on the water cycle.Tonight when you go home, talk to whoever is at home: mom, dad, sisters, brothers, or grandparents. I want you to ask them if they leave the water running when they are doing the dishes? Do you leave the water running when you are brushing your teeth? What kinds of things do you pour down your drain? Any chemicals? Grease from cooking? How do you think those things might affect the water cycle? Are there things you and your family could change? |
| **Human Development – Age appropriate learning and activities – elaborate on how you selected the activities and how you know they are age appropriate**From Yardsticks book, 8 year olds have a rapidly expanding vocabulary and like to explain ideas but don’t always remember what they’ve heard. Our lesson addresses this developmental component by teaching new vocabulary through activities that provide multiple means of acquiring and remembering new knowledge (kinesthetic, mindfulness, speaking, reading, listening and writing).These activities support social emotional learning as 8 year olds love group activities and cooperative work.Their cognitive growth is supported through the use of organizational tools such as notecatchers as they usually organize work well, but sometimes need teacher support.**Resource:**  Wood, C. (1997). *Yardsticks: Children in the classroom, ages 4-14: A resource for parents and teachers*. Greenfield, MA: Northeast Foundation for Children. |
| **Technology Integration – write a paragraph on how the technology in this lesson enhanced the learning of the students.** We created the video with captioning in this lesson as part of a plan to offer more options to differentiate and deepen the learning for all students by repeating the message in a format that will keep the students engaged. The captioning is intended to add clarity to some of the clips, and will provide support for students with audio difficulties. The video will especially enhance and deepen the learning for visual learners as the video takes the student to the places that are in the dialogue. (ISTE 2c.) We have included the dialogue sheet for all of the students. It is intended for any students that may not want to watch the video, and also as a backup in case the technology fails. If the technology were to fail, we will be able to act out the scenes and use the chart that comes later to complete that portion of the lesson. We are adding technology to the delivery of our lesson. We want any teacher anywhere to use our lesson, so we will record the presentation, and include that in the completed lesson.**Video link for the Quabbin Water Cycle:** <https://www.youtube.com/watch?v=FwBoznT-sCE>**Video link for the lesson presentation:**<https://drive.google.com/file/d/0BzMShIjrC8X-Vm5aVGpSbkg5WWs/view?usp=sharing> |
| **Social Emotional Learning – write a paragraph about how you have included process or activities that speak to the ‘heart’ rather than simply content – the head!** Our incorporation of the mindfulness exercise supports students as they begin to develop the practice of self-regulation. Although this exercise was not specifically about the management of emotions, we believe it is important to support students in the development of this strategy of visualization and mindful relaxation as part of an ongoing daily practice. As it is made a part of classroom routines and a part of content lessons, students will continue to become more comfortable with the practice and will become better able to focus and will teach them to recognize emotions and body sensations proactively.The use of group work throughout our lesson supports collaboration, opportunities for shared air time and multiple modes of expression (speaking, listening, and drawing). Collaboration and learning to take turns when speaking and listening are crucial skills for our students to develop not only to support their academic learning but to help them develop skills they will need over their lifetime. |