



Title	The Relationship Between Humans and Snakes at the Quabbin
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Subject Areas	Dance, Spanish, Mathematics, Biology, English Language Arts
Grade Level	Grade 9-10
Length of Lesson	50 minutes

Content Curriculum Frameworks addressed in this lesson	<p><b>Mathematics</b> <b>SMD 7: Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).</b></p> <p><b>English</b> <b>ELA 9-10.W.1: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.</b></p> <p><b>Foreign Language</b> <b>Standard 1.2: Demonstrate comprehension of content from authentic audio and visual resources.</b></p> <ul style="list-style-type: none"><li>• <b>Understand the purpose of a message and point of view of its author.</b></li></ul> <p>Dance PreK-12 Standard 10: Interdisciplinary Connections: Students will apply their knowledge of the arts to the study of English language arts, foreign languages, health, history and social science, mathematics, and science and technology/engineering.</p> <p>Biology LS6.3: Describe how relationships among organisms (predation, parasitism, competition, commensalism, mutualism) add to the complexity of biological communities</p>
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Specific Technology Standards addressed in this lesson	<p><b>ISTE 1 (Teacher Standard): <u>Facilitate and Inspire Student Learning and Creativity</u></b></p> <p>c) Promote student reflection using collaborative tools to reveal and clarify students’ conceptual understanding and thinking, planning, and creative processes.</p> <p><b>ISTE 2 (Student Standard): <u>Communication and Collaboration</u></b></p> <p>a) Interact, collaborate, and publish with peers employing a variety of digital environments.</p>
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Learning Targets and Assessments	
<p>I can use a centering exercise to connect my emotions to an audio clip in multiple languages.</p> <p>I can translate, read, write, pronounce and spell the word Snake in Spanish by watching a video and presenting the component alpha characters.</p> <p>I can analyze data using probability to make accurate conclusions about snake bites.</p> <p>I can understand and give examples of predation, parasitism, competition, commensalism and mutualism between different species in the Quabbin habitat</p> <p>I will brainstorm ideas on a note catcher for a story told in two perspectives--the eyes of a human and the eyes of a rattlesnake--using evidence from the class lesson.</p>	<p><b><u>Assessments FOR Learning (formative)</u></b></p> <p>Listening to the Think, Pair, Share activities.</p> <p>Ask students the translation of the word Snake, suggest them to reason by empowering to spell, read, and pronounce the word “ Serpiente”</p> <p>Calling on students to use deductive reasoning to puzzle out the definitions of biological terms, offering examples to support their ideas</p> <p>Collaborative brainstorm exercise shows how each student is understanding the relationships in question.</p> <p>Instructor observation during Brainstorm Worksheet work</p> <p><b><u>Assessments OF learning (summative - exit)</u></b></p> <p>Turn in completed brainstorm and outline worksheet for me to review before we start drafting during next class session.</p>

Assumed background knowledge
<p>Students are familiar with the current Quabbin Reservoir, including what it looks like, its current uses, and some of the wildlife one may find there. They have some knowledge of Quabbin history from previous coursework.</p> <p>Students and teachers have read “Masswildlife Timber Rattlesnake Brief”  <a href="http://www.mass.gov/eea/docs/dfg/nhesp/species-and-conservation/timber-rattlesnake-conservation.pdf">http://www.mass.gov/eea/docs/dfg/nhesp/species-and-conservation/timber-rattlesnake-conservation.pdf</a></p> <p>Students should also be familiar with a basic understanding of probability, as well as use of evocative language.</p>

There are three phases to this lesson:

<b>INTRODUCTION of the lesson: Building engagement/setting purpose/activating prior knowledge....</b>	
<b>Instructional Steps</b>	<b>Differentiation</b>
<p><b>This lesson engages students by beginning with a mysterious sensory experience for them to puzzle over. The lesson has an overarching theme that connects interdisciplinarily. Teachers will use visuals, sound, interactive technology, movement, and other techniques to maximize student engagement. Students will have ample opportunities to voice their own perspectives, work collaboratively or independently as they learn best, and to ultimately create a story of their own imagining. Throughout the lesson, discussion will be centered on the relationship between timber rattlesnakes and humans in the area around the Quabbin Reservoir.</b></p> <p><b>8 minutes</b></p> <p><b>Jane</b> will lead Students in a Centering exercise. Before beginning, teacher will describe Centering as a simple, still physical activity that is effective in reducing stress and opening the mind and body to new learning. Teacher may share examples for relevant use to high schoolers: e.g. before a test or presentation. Ask students to find a comfortable seated, standing or reclined position ON FLOOR. Tell students they will be in this quiet, still position with eyes closed for 2 minutes. Encourage students to continue to send thoughts of past or future out of their head and down to their heart. Instruct students to take 2 deep breaths in through the nose and out through the mouth (with a sound/sigh). Ask students the following questions before each of 3 Centering auditory stimuli*: 1. “What do you hear?” 2. “How do you feel in your body?” 3. “What emotions come up?” After, she will have them open eyes and write a very brief reflection in 5 words or so.</p>	<p>It will engage students who learn kinesthetically, orally, or aurally. Students who have trouble focusing will have explicit instruction on centering themselves for the lesson.</p>

<p>*Sound stimuli in order:</p> <p>a. <a href="https://watchkin.com/27b87a73d9">https://watchkin.com/27b87a73d9</a> (0-13 seconds)</p> <p>b. Silence (natural sounds of room only)- 45 seconds</p> <p>c. <a href="https://watchkin.com/7e1052ebc5">https://watchkin.com/7e1052ebc5</a> (0-24 seconds)</p> <p><b>Ivonne - 7 minutes</b></p> <p>Continuing with the mystery part, <b>Ivonne</b> will start teaching the spelling and pronunciation of the word “Snake” in Spanish by showing a video of the translated word “Snake”. ( video 0-48 seconds)</p> <p><a href="#">Ivonne’s Serpiente Video</a></p> <p>[<a href="https://drive.google.com/file/d/0B2R0VcLkABGAX1E4Y2h2YmwxYzg/view">https://drive.google.com/file/d/0B2R0VcLkABGAX1E4Y2h2YmwxYzg/view</a>]</p> <p>Then, <b>We</b> will briefly discuss what emotions they were thinking about during the centering exercise and listening the word “Serpiente” before revealing the day’s learning targets and linking timber rattlesnakes to the local area and the Quabbin Reservoir.</p>	<p>With the second sound (c.), students will have the inclusion of a mystery word “Serpiente” to discover emotions with another language.</p> <p>Students can see and hear the spelling of the word “Serpiente”, and can note this down if they feel it will solidify their learning.</p> <p>Video’s sound pronunciation of the word “Serpiente” is created by a native speaker, allowing students, including native Spanish speakers, to accurately engage with the aural qualities of the word. Students can also have the opportunity to continue practice word “Serpiente” by having access anytime to re-visit the video at home</p>
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<b>Scaffolding plans for the BODY of the instruction</b>	
<b>Instructional Steps</b>	<b>Differentiation</b>
<p><b>Nicole - 10 minutes</b></p> <p>Math: Probability</p> <p><a href="http://www.polleverywhere.com">www.polleverywhere.com</a> “What are the chances of dying from a snake bite?”</p> <p>Discuss results as a large group.</p> <p>Teacher leads a large group discussion on the definition of probability using Google Slides.</p> <p>Think Pair Share: Give students some data about snakes using the worksheet. Can you find the probability of dying from a snake bite?</p> <p>Now discuss with a partner. Did your partner solve a different way?</p> <p>Share out the results.</p>	<p>Students will have visuals and definitions on Google Slides. They will also work individually and in pairs. There is an option for a progressively harder worksheet. The expectation is that only #1 is completed. The teacher will be available at a table for extra help. There is also the choice of ‘calculators are allowed’ if needed. Think, Pair, Share allows students to process by themselves, then orally with a partner, then reflect back with the whole group and instructor. There is also multiple means of representation of answers will be allowed on worksheet.</p>

**10 minutes**

**Bailey**

Introduce the topic by saying that when snakes are not biting humans (as we have just learned is incredibly rare) we still share a habitat - the Quabbin - and as such have a relationship, that can be defined using Biology.

Using the handout, ask for volunteers to read the definitions aloud to the class. Take suggestions from students to match up the words on the screen with the definitions, filling in the sheet as a class.

Keeping in mind the probability of dying from a snake bite, how would we classify our relationship between humans and rattlesnakes? Give students a minute to think about this question independently, then share a few answers with the class. Students should be encouraged to give the reasoning behind their choice.

For extension work or a subsequent class students can think about the question: What other living organisms are in the Quabbin area and how could we classify their interactions?

**15 minutes -**

**Jenny**

Students will then be assigned by **Jenny** to connect with either the human or the snake perspective. Students who are “snakes” will be asked, “What do snakes think about humans?” and students who are “humans” will be asked, “What do humans think about snakes?”. Students will write their answers in 1-2 words on a sticky note and place them on the board under their particular question to produce a visual brainstorm. **Jenny** will pass out the assignment sheet and rubric for the overarching assignment and review her expectations. The students will then create human/snake pairings in groups of 2 or 4 to work on the brainstorm and outline worksheets.

Students are given handouts with written definitions of the terms, which are also read aloud to accommodate for visual and auditory learners. Students are asked to share their suggestions but will not be called on if they do not volunteer. Students who work more quickly can start to think about and fill in the examples column on their handout.

The visual brainstorm provides a distinct visual where students can begin to build comparisons. The instructor can take a picture of the brainstorm created so students can refer back to it in the future. The graphic organizer on the brainstorm worksheet with further help to internalize the comparisons. Students will be working in pairs or small groups in order to support connection-building. Instructors will remain present for and open to questions throughout the assignment.

Students will receive the assignment in an oral explanation as well as a hand-out.

<b>END Synthesis: How will students synthesize their understanding?</b>	
<b>Instructional Steps</b>	<b>Differentiation</b>
Jenny will end the lesson by collecting the brainstorm sheets (which she will review after class to gain an understanding of student learning) and informing the class to continue reflecting on the discussion and that in the next class we'll begin solidifying our plot arches and drafting. Engagement with themes discussed in class will be required in the written piece.	The format of the final written assignment could easily be altered to fit into IEPs or to be more engaging for struggling writers or learners. Students could be asked to make a comic strip, a shorter written piece, a scene or play, or other variations of the story from two perspectives. The same rubric could be used for these students.

Please include information on each of the following:

<p><b>Materials Required for this lesson (complete list and each document or item typed up)</b></p> <ul style="list-style-type: none"> <li>● Video of Snake</li> <li>● Spanish song video</li> <li>● Sticky notes and markers or bold pens</li> <li>● Polleverywhere.com for gathering data (if tech fails, then group brainstorm aloud)</li> <li>● Probability Handout</li> <li>● Biology definitions handout</li> <li>● Assignment Sheet with Rubric</li> <li>● Brainstorm and Outline Handout/Exit Ticket</li> </ul>
<p><b>Social Justice Orientation</b></p> <p>How we conceptualize social justice in the classroom is well-expressed in <a href="http://www.oswego.edu/~prusso1/what_do_we_mean_by_teaching_for_social_justice.htm">this article</a>.  [http://www.oswego.edu/~prusso1/what_do_we_mean_by_teaching_for_social_justice.htm]</p> <p>Human activity has been the major contributor to the endangerment of the rattlesnake, and has caused many other species in the world to become extinct. This lesson encourages people who will soon be adults to consider how their point of view and actions may impact another species. Additionally, considering the perspective of the rattlesnake for the first time encourages future engagement with the idea of author bias and how the perspective of a story can change the story itself. The lesson requires students in the area of the Quabbin Reservoir to consider multiple perspectives on the same subject, as well as from where these perspectives come, while connecting to a relatable local context that hopefully engages with their homeworlds, as well.</p>
<p><b>Human Development – Age appropriate learning and activities – elaborate on how you selected the activities and how you know they are age appropriate</b></p> <p>This lesson is meant for students in the 13- to 15-year age range, or grades 9-10. Engagement builds depth of understanding, so we incorporated visual technology and interaction with smartphones or computers to engage adolescents specifically. We incorporated age-appropriate humor during moments of material young adolescents may consider dry, and chose snakes as the overarching topic</p>

because many young teenagers are drawn to slightly edgy or creepy topics because of their desire to test boundaries. We incorporated kinesthetic activities, mindfulness, and peer-to-peer sharing to account for ways adolescent growth is often minimally addressed: limited opportunities to move during class, stress and outward distractions, and socio-emotional engagement. Additionally, we incorporated concrete, relatable examples and materials that contextualize concepts for students. Adolescents in this particular age range are beginning to grapple with real-world problems and have recently developed capacity for critical thought. Our lesson engages with wider world environmental issues, ethical questions, and varied perspectives, allowing them to test these skills in a safe and guided environment. Asking a younger student to take on the perspective of another, particularly another species, would be much more challenging. Lastly, allowing students to form their own pairs or groups and work within their own individual learning styles simultaneously gives students autonomy and a clear, explicit goal.

**Technology Integration – write a paragraph on how the technology in this lesson enhanced the learning of the students.**

Engaged students retain more knowledge and will enhance learning. The introductory activities and video will spark interest with a mystery aspect and increase motivation to examine meaning of the word “Serpiente.” The videos were selected specifically to engage with the habitat of snakes at the Quabbin Reservoir. The teacher-made video about the pronunciation, writing, and reading of the word “snake” in Spanish encourages varied connections with the material. Use of videos also enhances student learning because students who need more processing time or want to revisit the material can return to the video at home, and instructors can show it again if they refer to it in the future. The “Serpiente” spelling and pronunciation video in particular gives students access to the skills of a native speaker even when not at school.

Poll Everywhere allows for a quick gathering of information in a visual way. It also demonstrates to students how to use a cell phone or wireless device in a learning environment as an academic tool for gathering information.

**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!**

Adolescent students often enter classrooms distracted, anxious, tired, or otherwise disengaged. We begin the lesson with a guided mindfulness exercise which uses explicit guidance to redirect student attention and reduce distraction. Throughout the lesson, students are allowed and encouraged to express their emotions and consider how emotion relates to the content. The instructors create and model a calm, inviting environment.