

Lesson Design

1. Identify desired results.
2. Determine acceptable evidence.
3. Plan learning experiences and instruction.

Lesson: *Admirable Armonica Admirers*

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Enduring Understanding	Objectives	Pre-Assessment	Assessment
<p>THE BIG IDEA Students will understand that...Even though Wolfgang Mozart and Benjamin Franklin were born 50 years apart and were from different countries, they both shared a passion and love of music created on a Glass Armonica. Students will demonstrate that they understand the principles of creating music with water and glass.</p> <p><u>Music Content Standards</u> 3.0 Historical and Cultural Context. Students analyze the role of music in past and present cultures throughout the world, noting cultural diversity as it relates to music, musicians, and composers. 3.2 Explain the various roles that musicians perform, identify representative individuals who have functioned in each role, and explain their activities and achievements.</p> <p><u>History Content Standards</u> 10.0 Students develop an understanding of current world issues and relate them to their historical, geographic, political, economic, and cultural contexts. 10.3 Examine how scientific and technological changes and new forms of energy brought about massive social, economic, and cultural change (e.g., the inventions and discoveries of James Watt, Eli Whitney, Henry Bessemer, Louis Pasteur, Thomas Edison).</p>	<p>Knowledge and skills students will need to complete the final product or performance? Students will construct a primitive "Armonica" made with ordinary water glasses.</p> <p>Final performance or product <i>In what way(s) will students demonstrate what they have learned?</i></p> <p>Students will...be able to fill each glass with varying amounts of water. Students will tap the side of each glass with a stainless steel butter knife. Students will be able to listen to the different pitches so that they can calibrate the amount of water in each glass to create a "scale."</p>	<p>Students <i>How do you know what students already know? How can you find out?</i></p> <p>Students will be given a questionnaire that poses the following questions: What could Ben Franklin, a founding father of the United States, and Wolfgang Amadeus Mozart, an Austrian composer, possibly have in common?</p> <p>If you fill one glass of water with a small amount of water and another glass with a large amount of water and run your finger around the top rim of each glass, which glass will have a higher pitch?</p> <p>Teacher <i>What content knowledge and resources will you need to implement the lesson?</i> Teacher will need to know that the glass with a small amount of water will have a higher pitch than a glass with a large amount of water.</p>	<p>Summative <i>How will you know that students have achieved the standard(s)? Refer to the six facets of understanding listed below.</i></p> <p>Students will be able to explain that Franklin invented/made an "Armonica," which was a device that used the elements of water and glass to make definite pitches and tuned them to a Major Scale.</p> <p>Students will be able to explain that when Mozart heard the "Armonica" played, he loved the music and decided to compose a piece to be played on it.</p> <p>Students will be able to apply what they learn by filling the water glasses with varying amounts of water to create a scale.</p> <p>Students will be able to emphasize with Franklin, knowing how difficult it probably was to create the "Armonica."</p> <p>Students will be able to acquire self-knowledge in experimenting with varying amounts of water.</p> <p>Formative (For longer lessons) <i>How will you assess students' progress toward the objective?</i></p> <p>Have students play a Major Scale at the end of the lesson</p>

The Six Facets of Understanding (How do we know that we know?)

Explain

Interpret

Apply

Have perspective

Empathize

Have self knowledge

Process	Notes
<p>Learning Sequence: What are the steps involved in implementing this lesson?</p> <ol style="list-style-type: none"> 1. Students will be given a two-page history lesson describing how Ben Franklin invented the “Armonica.” 2. Students will learn how Mozart was moved when he heard music played on the “Armonica,” and how he composed music just for the “Armonica.” 3. Instructor relates the story of how people reported to be mentally affected by the sound of the “Armonica.” 4. Instructor shows students the Mozart Composition for the “Armonica,” titled, “Adagio in C,” that Mozart composed in 1791. 5. Students listen to “Adagio in C,” composed by Mozart. 6. Students write a paragraph describing the “Armonica” sound. 7. Students will fill identical water glasses with varying amounts of water. 8. Students will listen to the varying pitches of the glasses, and arrange in such a way that they make a Major Scale. 9. Students will be able to play a Major Scale on the glasses, either by running a finger around the rims of the glasses or by tapping each glass with a butter knife. <p>Vocabulary: <i>What new words will students need to learn in order to achieve the objective(s)?</i></p> <p>“Armonica,” the Italian word for harmony. “Adagio,” the Italian word meaning the composition is to be played slowly.</p> <p>Equipment, Materials, Resources: <i>What is needed for the lesson and the assessment?</i></p> <p>Teacher will need the history lesson that tells about Franklin inventing the “Armonica,” and Mozart listening to the “Armonica,” and later composing music specifically for the “Armonica.”</p> <p>Teacher will need a recording of Mozart’s “Adagio in C,” available to access, print out a hard copy, play and listen on the computer. “Adagio in C” available on the website: www.glassarmonica.com</p> <p>Teacher will need 8 identical water glasses, and water (stored in a pitcher until it is time to add water to each glass.)</p> <p><u>History Lesson on Next Page</u></p>	<p>What adaptations might you make to the learning sequence in order to meet different student needs?</p> <p>For special needs learners, I will give them additional time to set up their water glasses and experiment with varying amounts of water.</p> <p>Any other comments on the implementation of this lesson?</p> <p>No</p>

HISTORY LESSON:

The idea of running a wet finger around the rim of a wineglass rim has been written about as early as 1627 by Francis Bacon. Around 1750, sets of wineglasses tuned with water on which melodies could be played (called “musical glasses”) were common. Two men claiming credit for them are Richard Pockrich and Christoph Gluck. A ‘method’ for playing the musical glasses was published by Ann Ford in 1716 (www.glassarmonica.com)

Around 1761, Ben Franklin attended a performance on a set of ‘musical glasses’ in Cambridge by Edmund Delaval. Franklin decided to invent “a more convenient arrangement” (www.glassarmonica.com). At first, Franklin called his invention the ‘glassy-chord,’ but changed the name in 1762 to the ‘armonica,’ after the Italian word for harmony. His new invention had several features, including:

- Eliminating the annoying water turning by making the glasses the right size in the first place for the pitches desired
- Making the glasses graduated in size from the largest for the lowest note to the smallest for the highest note. They would be nested inside each other so only the rims would be exposed, so one would be able to play 10 glasses at once if desired.
- Mounting the assembly of nested glasses on a spindle so it would be rotating already.

Franklin was successful at incorporating all the above features on his armonica. The debut performance of his armonica, played by Marianne Davies was in early 1762. His invention was a hit! Davies went throughout Europe on tour with the armonica.

During the years that Marianne Davis toured Europe playing the armonica, the Mozarts were also touring Europe. Leopold Mozart, Wolfgang’s father, traveled all over Europe with Wolfgang and his older sister, Maria Anna. Mozart and his sister were child prodigies in music, playing for royalty and dazzling audiences with their musical skills such as improvisation, expert sight reading, and such. They were introduced to the armonica on a few occasions.

In 1773, Leopold and Wolfgang, who was now 17 years old, were in Vienna and saw the armonica again at their friend Franz Mesmer’s home. Leopold wrote to his wife, saying, “Herr von Mesmer, at whose house we lunched on Monday, played to us on Miss Davies’s harmonica or glass instrument and played very well. It cost him about fifty ducats and it is very beautifully made” (www.glassarmonica.com). Some weeks later, Leopold brought up the subject of the glass harmonica again, telling his wife that Wolfgang also tried playing Mesmer’s armonica. Leopold related to his wife that Herr von Mesmer played the armonica unusually well, and was the only person in Vienna who had learned to play it. He went on to say that Mesmer owned a much finer glass instrument than the one owned by Marianne Davis. Leopold told his wife, “How I should like to have one!” (www.glassarmonica.com).

Wolfgang Mozart heard Marianne Kirchgaessner in 1791 and was finally inspired to compose for the armonica—with which he had been acquainted since at least his teens. In the spring of 1791 he composed:

- The Adagio in C (K617a/K356) for solo armonica
- The Adagio and Rondo (K617) a quintet for armonica, flute, oboe, viola and cello
- He started a third quintet—a Fantasia in C (K616a) also for armonica, flute, oboe, viola and cello, of which he only completed the first 13 fragmentary bars
- Kirchgaessner performed the quintet at least (K617) and presumably also the solo Adagio.

"Of all my inventions, the glass armonica has given me the greatest personal satisfaction." - Ben Franklin