

Solve Me a Song- Lesson Two

Lesson Title: Pitch vs. Size- The Strings Family

Length: 40 minutes

Age Group: 2nd grade

Vocabulary: Violin, Viola, Cello, Bass, Quartet, Orchestra, Bar Graph, Ruler, Inches, Rounding, High, Middle, Low Pitch

Materials Needed: Strings worksheet, Ruler, Data Worksheet, Journals, Board for writing numbers, CD Player, Strings CD, Crayons/Colored Pencils/Something to Shade in the bar graph with.

Standards – Art: Music

6. Listening to, analyzing, and describing music
7. Evaluating Music and Music Performances
8. Understanding relationships between music, the other arts, and disciplines outside the arts.

Standards - Content: Common Core –

- 2.MD- Measure and estimate lengths with standard units
 1. Measure the length of a unit by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
 3. Estimate lengths using units of inches, feet, centimeters, and meters.
- 2.MD- Represent and interpret data
 9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
 10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put- together, take-apart, and compare problems⁴ using information presented in a bar graph.

Learning Objectives: Performance Tasks for this lesson:

The Student Will:

<u>Cognitive</u>	<u>Affective</u>	<u>Artistic</u>
Understand units of measure and how to measure in inches with a ruler to the nearest half inch. They will also demonstrate and apply their knowledge in a bar graph and make connections using their data.	Work as a class to analyze the music and figure out the relationship. Work with one other person to get measurements.	Listen to music from different members of the string family and be able to identify which one is being played. Understanding pitch and being able to recognize high/low pitch

Assessment Criteria for this lesson:

Students will work with partners to determine the lengths of the instruments drawn to scale to the nearest half inch. We will then work together to graph the data. They will have to answer questions on their own about the graph and we will discuss them.	Self-assessment after lesson about how it was working with a partner. Did it help you? Did you and your partner work well together? Think. Pair. Share.	We will have a discussion in the beginning of class assessing what instruments the class knows. They will then have to determine which instrument is being played by walking to the part of the room that represents that instrument. They will then have to ultimately determine the relationship between pitch and size.
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Introduce the Lesson's Target Learning

How will you introduce your lesson's concept? For this lesson, it works better if we start with the music. I will ask the students what instruments they know and we will discuss qualities of each instrument. Then, we will listen to small excerpts of music that show off the sound of the instruments. I will also have a question of the day: "How does size relate to pitch?"

Why are you studying this? Measurement and Data is a big section in the second grade common core standards. Students had trouble determining what a unit of measurement was and I want to make sure they know how to use a ruler, even if it is just rounding to the nearest half inch. Also, it is important for students to be exposed to different types of instruments. The strings family is very important and lends itself well to this relationship between pitch and size. It will show the students how measuring and displaying your data can help you analyze information.

Integrated Activities:

Drills, Movement Warm-up, and Exploration Activity:

- Strings Four Corners Exploration
 - After we explore the qualities of the string instruments (Violin, Viola, Cello, Double Bass), we will test the knowledge of identification
 - Each corner of the room will have a student with one of the numbers 1-4 shown using their fingers, each representing a different instrument. (1. Violin, 2. Viola, 3. Cello, 4. Double Bass)
 - I will play an excerpt of music from the Measurement CD and students will have to walk to the corner they believe
 - We will go through a few small excerpts until they seem to get it (15 minutes)

Rules for this Activity

- No running, walk quietly
- No touching anyone or bumping into anything
- When you think you know what instrument it is, quietly put up the number of the corner you are walking to and walk there nicely.

Target Activity:

- We will take out the rulers and explain how to count using the ruler. Then we will apply and measure the first instrument together. Violin- $3 \frac{1}{2}$ Inches.
- Student will then have to work on their own, with a partner to determine the rest of the measurements.
- Once we are done, we will go over the answers to make sure everyone is correct, and then they will graph each size on the bar graph.

(15 minutes)

Culminating Activity

- After the data is recorded on the bar graph, I will ask the class which instrument was the biggest/ smallest.
- Then we will discuss how the instruments sound and their pitches.
Pitch- How high or low a sound is
- How do they relate? How does size of string instruments relate to pitch?

Closing:

Reflection:

After we establish that, we will talk about what they learned today. What new instruments did you learn? What did you learn about measuring? What units of measurement did you use? How did you determine which was the biggest and smallest? How were you able to find the relationship between pitch and size?

Assessment

Journal:

Finally, students will fill out their journal and write a reflection:

- What did you like/dislike about today's lesson?
- What have you learned about the strings family? Can you name some instruments?
- Tell me something about pitch.
- How did you measure the instruments? What unit of measure did you use?
- How was it working with a partner to help you?
- Anything else you learned? Draw a picture!

(10-15 minutes)

This lesson has been modified from Foss: Physics of Sound, Investigation 2: Good Vibrations, Part 2: Length and Pitch. Published by Delta Education, Nashua, NH, 2000
Adapted from Lesson Plan Template by Eric Johnson 2002