**Lesson Title**

Science, Vibrations in String instruments

**Grade Level**

1st grade

**Curriculum Area**

Science

**Key Concepts**

PA.S. 3.2.C Recognize and use the elements of scientific inquiry to solve problems

PA.S. 3.4.C Observe and describe different types of force and motion

**Behavioral Objectives**

Students will be able to interact with objects to help them realize that the harder you pluck a string instrument, the louder it will be. The faster the vibrations, the louder the instrument will be.

Students will be able to make connections between the instrument they made and the actual instruments.

**Materials**

1. Violin

2. Guitar

3. Rubber bands

4. Paper towel rolls

5. Tissue Boxes

6. Coffee Cans

7. Paper

8. Pencils

**Procedure**

Anticipatory Set-

1. Students will come to rug.

2. The teacher will talk about the instruments they have (violin and guitar). (The teacher will ask them if they know what instruments they are first before explaining them).

The rest of the lesson-

3. The teacher will explain where these can be commonly heard (Irish dances and Latin music).

4. The teacher will ask how they play instruments and why they have different levels of sound. (If no one knows the teacher will begin to explain about the vibrations ).

5. The teacher will pluck the instrument hard and softly and show the students the difference between the speeds of the strings on the instruments.

6. The teacher will then have the students go back to their seats.

7. Each group will create an instrument that can have the biggest vibration (play the loudest) by using rubber bands and a tissue box, coffee can, or a paper towel roll and then give it a name.

8. The students will write their hypothesis about how their instrument will play. (Will it be easy, hard, will it be loud or soft?)

9. Each student in the groups will then take turns playing the instrument and write down what happens when they play the instruments.

10. Each group will present their instrument to the class and explain their findings.

11. Then the groups will each play their instruments and take a vote of whose instrument was the loudest.

12. Lastly, the teacher will go over the concept of the instrument again to allow the students to get a full understanding of it. (During this the teacher will be asking questions.

**Assessment**

During this lesson, the students will demonstrate their knowledge by creating an instrument that will have the ability for the string to move fast to create a bigger vibration. This will allow the instrument to sound louder. They will be assessed through their experiment with making the instruments. In addition to what they write on their paper about the instrument they made.