

**Project FOCUS
Best Lessons
SECOND GRADE**

Title of Lesson: Introduction to Vibration

Theme: Physical Science

Unit Number: 3 **Unit Title:** energy/ Pushes and Pulls

Performance Standard(s) Covered (enter codes):

S2P2

Enduring Standards (objectives of activity):

Habits of Mind

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

Content (key terms and topics covered):

Sounds, Vibrations

Learning Activity (Description in Steps)

Abstract (limit 100 characters): Explains what vibrations are and relates them to the formation of sounds.

Details: Preparation:

Begin by asking students what they already know about sounds to get a feel for their understanding of vibrations. Divide students into groups of 5 to 8. Since some noise will be made during this activity, take care not to disturb other classrooms. Ask children what a vibration is, and make a list on the board. Ask children to move their bodies (wiggle back and forth) as if they were vibrating. Then have them hum and talk while placing their hands on their throat to feel their vocal cords. Ask what they feel and explain the relationship of sound to vibrations. Place the end of the ruler on the of the desk and press down, on the overhangin end, making the ruler vibrate. Ask the children what the ruler looks and sounds like. Next, tap the tuning fork against the table, and ask children to observe what they see and hear. Now split them up into groups of two since they are familiar with vibrations. Have the pairs work together to place the plastic over the can and hold it in place with the rubber band. Make sure the plastic is tight over the opening and sprinkle some salt over it. Ask one partner to hold the small can near the large one and tap it with the ruler. Ask them to observe what is happening to the salt and why. You should see the salt bouncing as a result of the vibrations hitting the plastic. It is helpful to give each person a job: the "tapper" and the "observer". This helps the kids work together and prevents one from dominating the experiment.

Possible Questions:

- 1. Where must you hold the small can to get the plastic to vibrate the most? Why do you think that is?**
- 2. If you tap the can harder do you think more or less salt will bounce up and down? Why do you think that is? What will happen if you tap the can softer?**

Materials Needed (Type and Quantity):

1 ruler per 2 students

1 tuning fork

1 rubber band per 2 students

1 piece of plastic wrap per students

1 large can per 2 students

1 large can per 2 students

Time requirement: 1 to 1 1/2 hours

Notes and Tips (suggested changes, alternative methods, cautions):

Safety: Remind the students that this is an experiment and that the salt should not be eaten. Also, remind them to appropriately use the tools- only tap the can with the ruler, etc.

Sources/References:

- 1)**
- 2)**
- 3)**