

**Richmond Public Schools**  
**Department of Curriculum and Instruction**  
**Curriculum Pacing And Resource Guide – Unit Plan**



**Course Title/ Course #: Fifth Grade**

**Unit Title/ Marking Period # (MP): Forces/Motion (Sound)**

**Start day:45**

**Meetings (Length of Unit): 10 days**

***Desired Results ~ What will students be learning?***

**Standards of Learning/ Standards**

5.2

The student will investigate and understand how sound is created and transmitted, and how it is used. Key concepts include:

- a) compression waves;
- b) vibration, compression, wavelength, frequency, amplitude;
- c) the ability of different media (solids, liquids, and gases) to transmit sound
- d) uses and applications of sound waves.

**Essential Understandings/ Big Ideas**

- How does sound travel?
- How do scientists describe sound?
- How does sound change when traveling through different states of matter?
- How does sound affect your life?
- How do the different ways animals use sound compare to how humans use sound?

## Key Essential Skills and Knowledge

### **Students will:**

Use the basic terminology of sound to describe what sound is, how it is formed, how it affects matter, and how it travels.

Create and interpret a model or diagram of a compression wave.

Explain why sound waves travel only where there is matter to transmit them.

Explain the relationship between frequency and pitch.

Design an investigation to determine what factors affect the pitch of a vibrating object.

This includes vibrating strings, rubber bands, beakers/bottles of air and water, tubes (as in wind chimes), and other common materials.

Compare and contrast sound traveling through a solid with sound traveling through the air.

Explain how different media (solid, liquid, and gas) will affect the transmission of sound.

## Vocabulary

Echo, frequency, pitch, amplitude, volume, wavelength, sonar, echolocation, communication, ultrasound, vibration, matter, sound wave (compression wave), compression, rarefaction, decibel, energy, medium, media, vacuum, absorb, transmit, molecule, solid, liquid, gas, percussion instruments, stringed instruments, wind instruments, and electronic instruments.

## *Assessment Evidence ~ What is evidence of mastery? What did the students master & what are they missing?*

### Assessment/ Evidence

Pictures with student explanation

Science Journal

Sound travel through media – Listen with a cup through a doorway

Use slinkies to make models of sound waves

Observe and describe sound

Test/assessment

## **Learning Plan ~ What are the strategies and activities you plan to use**

### Learning Experiences/ Best Practice

#### **Review Activities:**

- Bingo with related vocabulary

- Matching – sound vocabulary words with their definitions and/or pictures

**Outdoor Connections:**

**How Far Can You Go?**

Either download from the web different sounds with different pitches or use a xylophone. Take students outside with your sounds. Instruct your students that they will walk outward from the circle (radius—math connection) until they can't hear the sound any more. Download each sound that is 20-30 seconds in length or make the sound myself on the xylophone for that amount of time. Give each student a wooden dowel to mark his/her stopping point. Have students then either measure their distance traveled with a tape measurer or have them mark their location by sketching their results. Discuss the results and how this kind of activity might impact humans and other living things as well.

Go outside with students. Have them sit in silence for 1 minute and listen to the sounds around them. Give them 3 minutes to do a quick-write about everything they heard. Did they all hear the same things? Why and why not? Were some sounds louder than others? Why?

**Technology Integrations**

**Websites:**

[www.studyjams.scholastic.com](http://www.studyjams.scholastic.com)

[www.rockingham.k12.va.us](http://www.rockingham.k12.va.us)

[www.pbskids.org/zoom/activities/sci/#sound](http://www.pbskids.org/zoom/activities/sci/#sound)

[www.doe.virginia.gov/testing/sol](http://www.doe.virginia.gov/testing/sol)

**Resources**

**Trade Books**

- The Science of Sound; by Steve Parker
- Sound; by Christopher Cooper
- Sound; by Sally Walker

**Cross Curricular Connection**

- Have students research how sound has evolved and become more sophisticated using technology over time.
- Use pictures and or props to demonstrate how sound travels.

