SCIENCE NORTH / SCIENCE NORD

SUDBURY, ONTARIO, CANADA

Coding Sound Waves	Grade 4 – Light and Sound

Lesson Plan	Coding Tool	Scratch
	Cross-curricular	N/A

Big Ideas	**Specific Expectations**
• Light and sound are forms of energy with specific properties. • Sound is created by vibrations.	**2.3** investigate the basic properties of sound **2.5** use scientific inquiry/research skills to investigate applications of the properties of light or sound

Description

In this activity student will record sounds at different levels (low, medium and high) and code creatures to make those sounds when clicked on in Scratch. They will also learn to compare waveforms and observe and record the differences in their own sounds.

Materials	**Computational Thinking Skills**
• https://scratch.mit.edu • Coding sheet • Findings Sheet	• Loops • Functions

Introduction

Discuss how sound is a wave and how computers have a way of recording and measuring these waves in a format called "waveforms". Explain that students will be recording their own waveforms so that they can code characters in Scratch to make their own unique noises. Explain that they'll need a creature that makes a soft noise, a creature that makes a normal level of noise, and a creature that makes a loud powerful noise. Have students open **https//scratch.mit.edu** and create a new project.

Action

- Use the included coding sheet to lead the class in adding sprites and having them react to being clicked with sounds.
- Show students how to record their own sounds.
- Have student review the waveforms of their recordings and record their data on included worksheet.
- Discuss their findings; what was different about each sound? Can you tell which sound is the loudest by only looking at the waveforms?

Consolidation/Extension

- As an extension to this project, you could have the students create their own digital instruments using Scratch and the same code we used in this activity.

Sciencenorth.ca/schools
1
Science North is an agency of the Government of Ontario and
a registered charity #10796 2979 RR0001