Sound Storyline
STC 3rd Grade

Unifying Concepts:

- Systems, order and organization
- Evidence, models and explanations
- Change, constancy and measurement
  Evolution and equilibrium
- Form and function

Big Ideas:

Sound is produce Sound is produced by vibrating objects d by vibrating objects. Changing the rate of vibration can vary the pitch of the sound.

Sub Concept I: Sounds are produced by vibrating objects and columns of air

Sub Concept II: Changing the way an object or column of air vibrates by changing its length can change the pitch.

Sub Concept III: Pitch is determined by how fast the vibrations (frequency); volume is determined by how strong the vibrations (amplitude).

Sub Concept IV: Changing the length, tension or thickness of a string affects the pitch (frequency).

Sub Concept V: Humans have ear membranes that receive sounds, and vocal cords that produces sounds

Description of Assessment: End-of-unit assessment, writing prompts; notebooks, review of student work
Science Process Skills: Observing, Questioning, Comparing, Communicating, Interpreting, Relating, Predicting, Inferring, Applying, and Organizing
National Science Standards: K-4 Physical Science; Motion of Objects; Science as Inquiry (Abilities and Understandings about Inquiry)
Rhode Island Science Standards: Motion

Sound Lessons

Lesson 1
Thinking About Sound
Investigating sounds from tuning forks

Lesson 2
How Sound Travels
Investigating vibrations, loudness, and sounds passing through materials

Lesson 3
Making Sounds with Nails
How different nails produce different pitches

Lesson 4
Making Sounds with Rulers
Relating the vibrations of different lengths of rulers to the sound produced

Lesson 5
Exploring Pitch
Testing how to make the pitch of sounds higher or lower

Lesson 6
Vibrations We Can't See
Relating the length of a slide whistle to its pitch

Lesson 7
Designing a Reed Instrument
Explaining how the design produces different pitches

Lesson 8
Making a Model Eardrum
Producing a vibrating membrane and investigating how distance affects the vibrations

Lesson 9
Making Sounds with String
Investigating different ways to change the pitch of sounds from strings

Lesson 10
Changing Pitch by Changing Tension
Experimenting with sounds produced from tightened strings

Lesson 11
Tuning A Stringed Instrument
Experimenting with ways to change the pitch of sounds in strings

Lesson 12
How Do Different Strings Sound?
Exploring different thickness of strings

Lesson 13
Making Louder Sounds from Strings
Exploring the effect of adding a bridge to the instrument

Lesson 14
Making Sounds with Air and Strings; The Human Vocal Cords
Using rubber bands to make a model of human vocal cords

Lesson 15
What Have We Learned About Sound?
Designing and building instruments that apply what students know about sound

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  Evolution and equilibrium
- ✔ Form and function

Big Ideas:
Sound is produced by vibrating objects.
Changing the rate of vibration can vary the pitch of the sound.

Lesson 15
What Have We Learned About Sound?
Designing and building instruments that apply what students know about

Sub Concept I: Sounds are produced by vibrating objects and columns of air

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Sub Concept II: Changing the way an object or column of air vibrates by changing its length can change the pitch.

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Sub Concept III: Pitch is determined by how fast the vibrations (frequency); volume is determined by how strong the vibrations (amplitude).

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Sub Concept IV: Changing the length, tension or thickness of a string affects the pitch (frequency).

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Sub Concept V: Humans have ear membranes that receive sounds, and vocal cords that produce sounds

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