

NGSS SCIENCE 4

Standards & Objectives

Overarching Question: How does sound energy travel?
Standard Addressed: 4-PS3-2 Make observations to provide evidence that energy can be from place to place by sound, light, heat, and electric currents.

Objectives:

1. To make observations and provide evidence that a sound is a wave that spreads out in all directions.
2. To understand that sound waves travel occur through compression and rarefaction.
3. To make observations and find evidence that increasing force/energy increases the amplitude.
4. To make observations and find evidence that when sound waves travel through less dense materials and that sound bounces off flat surfaces better than bumpy and/or rough surfaces.
5. To make observations and find evidence that sound travels best through liquids, and worst through gases.

Pacing Guide

Suggested Order of Instruction - Energy
9-11 weeks

In the first six weeks, students engage and explore four types of energy on activities. These activity-based units can be taught in any order.

Sound 5-6 days

- Students explore sound energy in six hands-on stations:
1. What is sound?
 2. How does sound travel?
 3. What is amplitude?
 4. What is pitch?
 5. Which materials conduct and insulate sound?
 6. Does sound travel better through solids, liquids, or gases?

Light 5-6 days

- Students explore light energy in six hands-on stations:
1. How does light travel?
 2. Which materials are transparent, translucent, and opaque?
 3. Which materials reflect light?
 4. What is refraction?
 5. What is color?
 6. Light Reading

Heat 8-11 days

- Students work in small groups to complete eight hands-on activities:
1. What is heat?
 2. How does heat travel?
 3. What is conduction?
 4. What is convection?
 5. What is radiation?
 6. What materials insulate and conduct heat?
 7. How does heat change matter?
 8. How do we measure heat?

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Illinois Next Generation Science Standards Pacing Guide

Yicheng Fang



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