**Sound Energy Scavenger Hunt Activity**

**Materials:**
- Sound energy questions worksheet (pages 2-3)
- 18 sound energy fact cards (pages 4-8)
- scissors and scotch tape

**Preparation**
Print the fact cards and cut them apart.
Make copies of the sound energy questions worksheet (2-sided). Each student will need his or her own copy.
Hide the 18 sound energy fact cards around your classroom where students will be able to find them.
You can put them on the back of your classroom door, on chairs, on the computer keyboard, on the sides of student desks, or wherever you like.

**Activity**
Students receive copies of the question worksheet. They have to search the classroom to find the fact cards to answer the questions.
After they have completed the question sheet, you can go over the answers together with the class.

**Management tips**
You may want to make this a silent activity so students don’t share answers with each other.
You can have the kids work by themselves or with partners.
Don’t be afraid to hide the facts in tough places. Kids think it’s more fun when they have to search around a little.

**Examples of good hiding spots might include:**
- sticking out of a book, like a bookmark
- the back of the classroom door
- laying flat on the bookshelf
- on the back of the teacher’s chair
- on the side of your computer monitor

Have a plan for students who finish early. You may want to have an assignment for them to complete when they’re done, or you may have them help other students find fact cards.
<table>
<thead>
<tr>
<th>Fact Card 1:</th>
<th>What are vibrations?</th>
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<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>Fact Card 2:</td>
<td>Sound energy cannot travel through...</td>
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<td>Does sound travel faster through air or water?</td>
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<td>Can most passenger planes fly faster than the speed of sound?</td>
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<td>What units are used to measure the volume of sound?</td>
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<td>Fact Card 9:</td>
<td>Humans can detect sound vibrations with their ears and their...</td>
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Fact Card 10: Your ear has nerves that sends sound signals to...

__________________________________________________________________

Fact Card 11: A human being can hear sounds with frequencies between...

__________________________________________________________________

Fact Card 12: Most children can hear sounds up to 20,000 Hz. A 50-year-old can typically hear sounds up to...

__________________________________________________________________

Fact Card 13: Underwater, dolphins can hear sounds that are over ____ away?

__________________________________________________________________

Fact Card 14: You can only hear wind when it...

__________________________________________________________________

Fact Card 15: The loudest natural sound on earth came from...

__________________________________________________________________

Fact Card 16: If you put your fingers on your throat and sing a song, you can feel vibrations created by your...

__________________________________________________________________

Fact Card 17: An echo is created when...

__________________________________________________________________

Fact Card 18: Name two objects that absorb sound.

__________________________________________________________________
Sound Energy

Sound comes from vibrations. Vibrations are back-and-forth movements in molecules of air or other matter. A sound wave is created when molecules bump into each other and form a wave.

Sound energy can travel through any type of matter (solids, liquids, and gases). It cannot travel through areas that don’t have matter, such as outer space.

When sound travels through water it moves four times faster than when it travels through air.

Some airplanes can travel faster than the speed of sound. When this happens, you can see an airplane flying silently overhead, and you’ll hear a booming sound afterwards.

Most passenger planes cannot travel this fast, but some fighter jets can.
Sound can travel at a speed of about 767 miles per hour (1,235 kilometers per hour) in dry air. The speed of sound can change depending on the temperature and moisture of the air.

Frequency is the number of vibrations per second a sound wave gives off. Frequency is measured in units called hertz (Hz).

Sound is measured in units called decibels. A whisper is about 15 decibels. A jet airplane is about 150 decibels. Sounds over 85 decibels can harm your ears.
Humans can detect sounds with their ears, of course. But many times we can feel the vibrations of loud sounds with our skin too.

The inside of your ear vibrates when it detects sounds. The ear has nerves that send the sound signals to the brain.

Young people can hear higher frequency sounds than older people.

Children under 10 years old can usually hear sounds up to 20,000 Hz (vibrations per second).

Teenagers can hear sounds up to 17,500 Hz.

A 50-year-old can hear sounds up to about 12,000 Hz.

A human being can hear sounds that have frequencies between 20 and 20,000 vibrations per second (Hz).

Dogs can hear up to 50,000 Hz.

Cats can hear sounds up to 77,000 Hz.

Young people can hear higher frequency sounds than older people.

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Sound Energy

Fact Card 13

Underwater, dolphins can hear sounds from over 15 miles (24 kilometers) away.

Fact Card 14

Wind itself does not have a sound. You can only hear wind when it blows against other objects.

If you put your fingers on your throat and sing a song, you can feel the vibrations created by your vocal chords.

The loudest natural sound ever observed on earth came from a volcano eruption in 1883. The sound could be heard by people 4,000 miles (6,437 kilometers) away.
An echo is created when sound waves travel a long distance and then bounce off an object and back to your ear.

Sound bounces off of some solid objects, such as stone or hardwood. Other solid objects, like cloth or foam, absorb sound.
### Sound Energy Scavenger Hunt

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### Sound Energy Scavenger Hunt

**Fact Card 10:** Your ear has nerves that sends sound signals to...
- **your brain**

**Fact Card 11:** A human being can hear sounds with frequencies between...
- **20 and 20,000 vibrations per second (Hz)**

**Fact Card 12:** Most children can hear sounds up to 20,000 Hz. A 50-year-old can typically hear sounds up to...
- **12,000 Hz**

**Fact Card 13:** Underwater, dolphins can hear sounds that are over ____ away?
- **15 miles (24 kilometers)**

**Fact Card 16:** If you put your fingers on your throat and sing a song, you can feel vibrations created by your...
- **vocal chords**

**Fact Card 17:** An echo is created when...
- **sound waves travel a long distance and then bounce off an object and back to your ear**

**Fact Card 18:** Name two objects that absorb sound.
- **cloth and foam**

Preview

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