

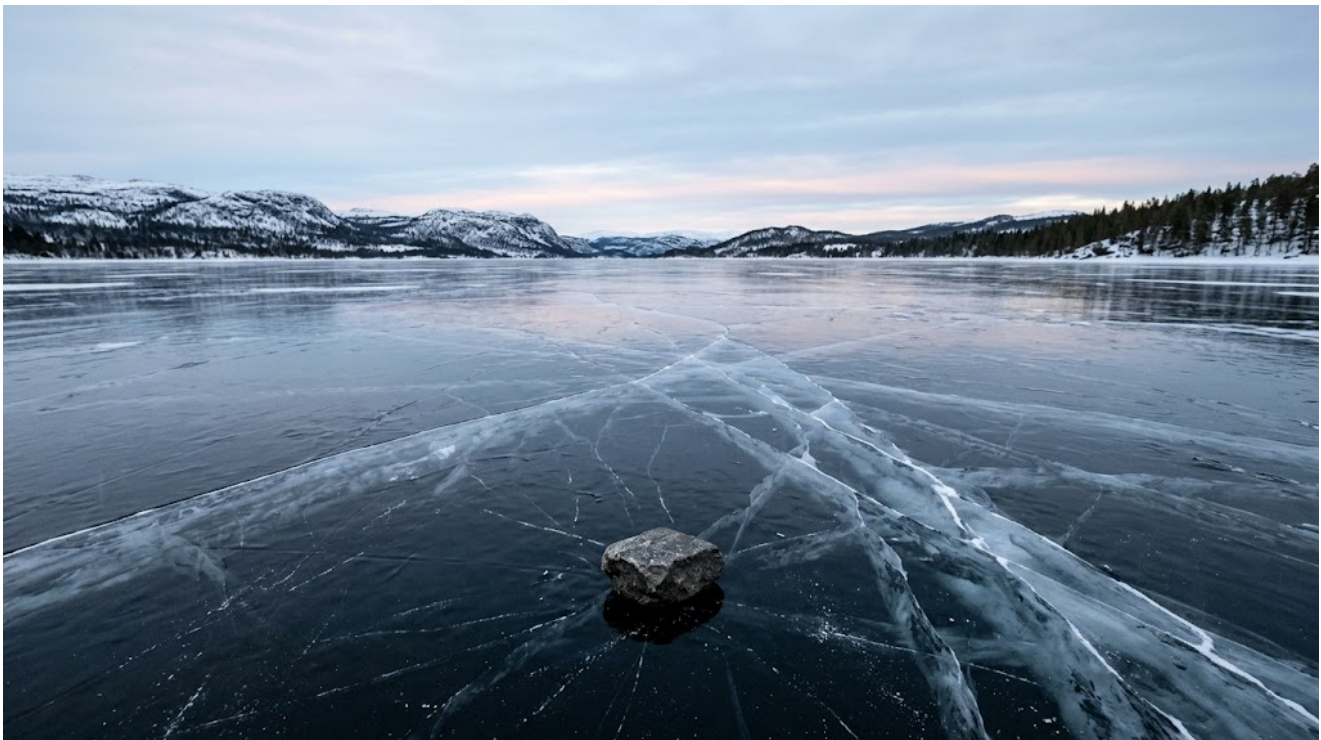
The Lake That Sings

Throw a stone across a frozen lake and it answers you. Here is why.

6 min read

Before you read

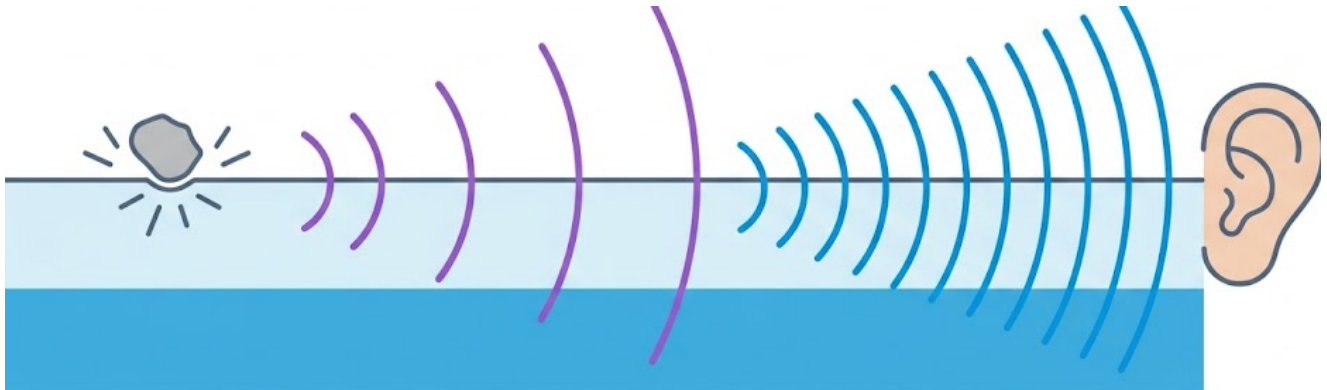
- **surface** — the top layer of something
- **vibrate** — to shake very quickly, over and over
- **pitch** — how high or low a sound is
- **expand** — to get bigger
- **contract** — to get smaller
- **echo** — a sound that bounces back to you



A frozen lake in Norway with dark smooth ice and snow-covered hills behind

- ¹ In winter, the lakes of Norway freeze from the top down. If the weather has been cold but calm, the ice forms flat and clear, like a sheet of dark glass laid over the water.
- ² Slide a stone across that ice and it does not simply clatter. It sings. The sound is high and strange, a little like a laser in a film, and it races away from you across the lake and fades.
- ³ People have described this sound for hundreds of years. The explanation is to do with speed.
- ⁴ When the stone hits, it makes the ice vibrate. Those vibrations travel outwards through the ice and come back to your ear. But they do not all travel at the same speed.

⁵ In a thin sheet of ice, high sounds travel faster than low ones. The high notes reach you first and the low notes arrive behind them. That is why the pitch seems to slide downwards, and why it does not sound like an ordinary echo.



The high notes (blue) outrun the low notes (purple) and reach the ear first

⁶ Frozen lakes make other noises too. On a cold night you may hear a deep boom that seems to come from underneath you. That is the ice expanding and contracting as the temperature changes, until it cracks somewhere far out in the middle. The boom is loud, but the crack that made it may be nowhere near your feet.

⁷ Scientists use these sounds. By listening to how an ice sheet rings, they can work out roughly how thick it is without drilling a single hole. The thinner the ice, the higher and more musical the sound.

⁸ That last fact is also a warning. The ice that sings most beautifully is often the thinnest ice on the lake. In Norway, children are taught to listen to the ice but never to trust it alone: you go out only with an adult who has measured the thickness, and never on ice you have not had checked.

⁹ A singing lake is a wonderful thing to hear. It is also the lake telling you something about itself, if you know how to listen.

Part A Choose the best answer

Circle the letter next to the right answer.

1. What kind of weather makes flat, clear ice?
 - A Cold and windy
 - B Cold and calm
 - C Mild and wet
 - D Snowy and stormy

2. Why does the singing sound seem to slide from high to low?
 - A The stone slows down
 - B High sounds travel through thin ice faster than low ones
 - C The lake is deeper in the middle
 - D The sound bounces off the hills

3. What causes the deep booming sound at night?
 - A Fish moving under the ice
 - B Wind across the surface
 - C Ice expanding and contracting until it cracks
 - D Snow falling onto the ice

4. How do scientists use the sounds the ice makes?
 - A To work out how thick the ice is
 - B To count the fish below
 - C To measure the depth of the lake
 - D To predict snowfall

Part B Write your answer

Answer in two or three full sentences.

5. Explain in your own words why the sound of a stone on ice is not an ordinary echo.

6. The passage says the most beautiful singing ice is often the thinnest. Why does that make the sound both interesting and dangerous?

Part C

Think deeper

There is no single right answer here. Say what you think, and say why.

7. The writer says the lake is "telling you something about itself, if you know how to listen". What do you think that means? Use one fact from the passage to support your answer.
8. Scientists found a way to measure the ice without drilling into it. Think of something you would like to measure or find out without touching it. How might you do it?

Answer key

For parents and teachers

Part A

1. B — cold and calm | 2. B — high sounds travel through thin ice faster than low ones | 3. C — ice expanding and contracting until it cracks | 4. A — to work out how thick the ice is

Part B

5. An echo is the same sound bouncing back, but here the sound is split up: the high parts arrive before the low parts, so what you hear changes pitch as it travels. Accept any answer showing the sound arrives in parts rather than all at once.

6. The sound is high and musical because the ice is thin, and thin ice is the ice most likely to break under someone. Accept: the thing that makes it sound good is the same thing that makes it unsafe.

Part C

These answers vary. Mark the reasoning, not the answer.

7. A strong answer explains that the sound carries information — about thickness or temperature — and cites a fact such as scientists measuring thickness by listening. A weaker answer treats the phrase as only poetic. Prompt with: what does the sound actually tell you?

8. Any sensible idea counts, however simple — weighing, listening, timing, shadows — as long as the child explains the method. Mark the reasoning, not the realism.

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