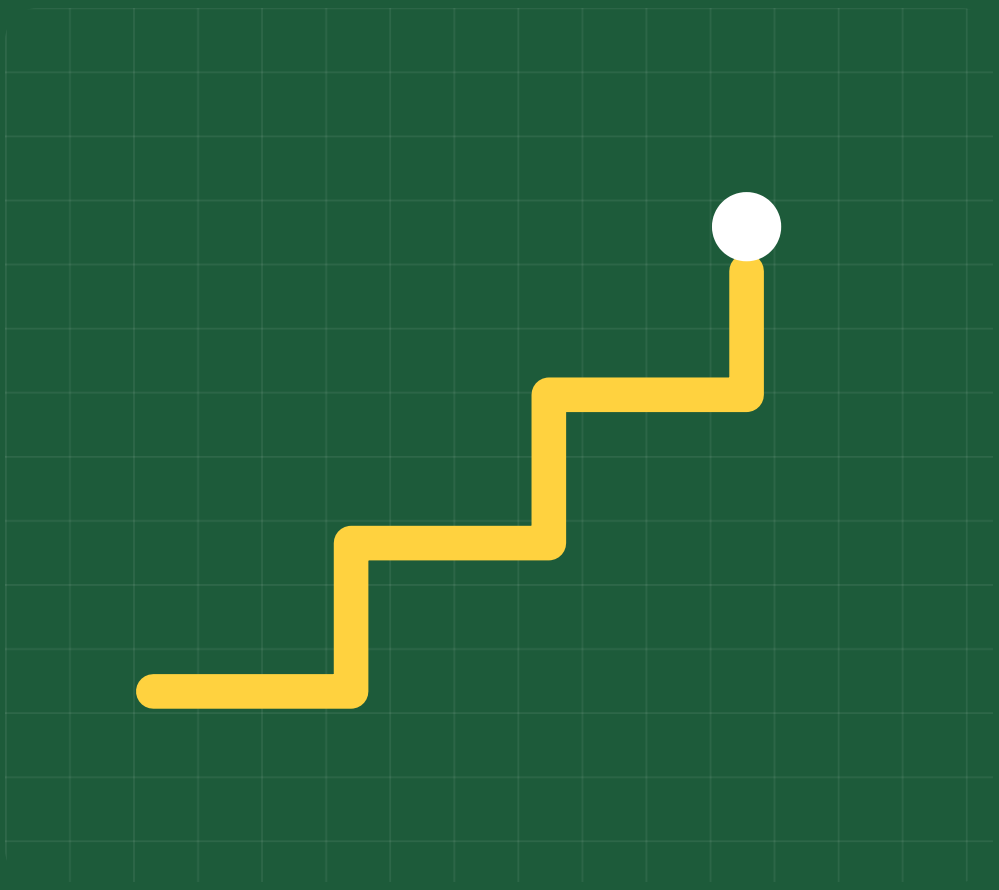
UpOnly Learning



GRADE 1

FREE SAMPLE WORKBOOK

# Science Grade 1

One step at a time. · Ages 6–7 · Free sample: 1 of 8 topics

UO-SCI-1

OUR STORY

# One step at a time

I'm Dr. Evan J. Hasson. I've run a specific chiropractic practice for over twelve years, and I'm a dad of three. My work is about alignment: get the structure right, and everything else works better.

At home, nothing was aligned. I was spending thousands a month on tutors, extracurriculars and programs, and when I asked about enrolling a second or third child the answer was always the same: that'll be double, that'll be triple. The charter school had a waiting list. The good public school had a waiting list. The private schools had the kind of list where it helps to know someone, or to give generously first.

And underneath all of it, the same quiet threat: if you don't pay for this, your child will fall behind. Not sold with evidence. Sold with fear.

So I did my own research, and here is what I found: none of it is secret. The standards are published. The order a child should learn in is written down and freely available. It is just scattered. Nobody had done the work of pulling it together, putting it in order and handing it over. So I did.

*When every step has its place, confusion has nowhere to hide.*

I built this for my own kids. I'm giving it to yours.

**Dr. Evan J. Hasson, DC**
Founder and dad of three

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**Safety.** Some activities use household items such as scissors, coins or food. An adult should supervise and skip anything unsafe for the student.

**Not professional advice.** This workbook does not replace an evaluation by a qualified educator or specialist. The founder is a Doctor of Chiropractic; UpOnly Learning does not provide medical or health advice.

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INTRODUCTION

# How to use this workbook

Each topic follows the same steps, so your student always knows what comes next.

① **Quick Check.** 10 questions before you teach. Read them aloud for younger students. A high score means you can move faster.

② **Learn It.** Key words, step-by-step teaching with lines you can read aloud, worked examples and the mistakes to watch for.

③ **We Do It Together.** 10 questions you do side by side. The answer and the "why" are printed right after each question, so you can talk it through.

④ **You Try.** 10 questions your student does alone.

Answers with short explanations for every question are in the **Answer Key** at the end of each topic, so students can work without peeking. Go over each wrong answer together using the explanation.

This workbook is printed in full color. To save ink, choose "Black and white" or "Grayscale" in your printer settings; every page still works in black and white.

Want online checks that score themselves and track each student's progress? Visit uponlylearning.com.

GRADE 1

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# Science: Grade 1

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**Topic 1 · Sound and vibration** ..... **6**

*Vibrating materials make sound, and sound can make materials vibrate* 1-PS4-1

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# Sound and vibration

The student will show that vibrating materials make sound and that sound can make materials vibrate.

## ① Quick Check

*Do this before the lesson. It shows what your student already knows. Score: ____ / 10*

1. Which one can make sound?

   **A** A picture on the living room wall **B** A shadow **C** A whistle you blow

2. When something vibrates, how does it move?

   **A** Very slowly in a circle **B** Back and forth very fast **C** It does not move at all ever

3. Which word means a big sound?

   **A** Still **B** Soft **C** Loud

4. Touch a speaker playing music. What do you feel?

   **A** Wet drops **B** Shaking **C** A soft blanket

5. Which tool would best show that sound can make things vibrate?

   **A** A drum with paper bits on top, near a loud sound **B** A cup of milk in the fridge with the door closed **C** A book on a shelf

6. A wind chime is moving in the wind and ringing. The wind stops and the chime goes still. What do you hear?

   **A** A drum beat **B** Silence from the chime **C** Even louder ringing sounds

7. Which instrument is played by hitting it to make it vibrate?

   **A** Trumpet **B** Harp **C** Drum

8. A big truck rumbles past. The glasses in the kitchen rattle. What made them rattle?

   **A** The loud sound made them vibrate **B** Someone touched them by mistake today **C** They were thirsty

9. A fan is spinning and the table it sits on hums. Lily moves the fan to the floor and the table stops humming. Why?

   **A** The fan was making the table vibrate **B** The fan got quieter by magic **C** The table got hungry

10. Which question could you test with a drum, rice and a spoon?

    **A** What is the drum's favorite color? **B** Does a louder sound make the rice jump higher? **C** How old is the spoon?

# ② Learn It

**MATERIALS** a rubber band; an empty tissue box or plastic container; a metal pot or baking pan and a wooden spoon; plastic wrap and a bowl; a pinch of dry rice; a ruler

## Key words

- **sound**: what we hear
- **vibrate**: move back and forth very fast
- **loud**: a big sound
- **soft**: a quiet sound

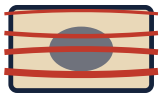
## Warm-up

1. Have the student put fingers gently on the front of their throat and hum.
2. Ask: what do you feel?

> *That buzzy feeling is vibration. Let's find out how vibration and sound go together.*

## Teach

1. Stretch a rubber band around the open box (use a latex-free band if anyone has a latex allergy, and keep bands away from eyes). Pluck it and watch it blur back and forth.



rubber-band box

2. Explain that the band moving back and forth fast is vibrating, and that makes sound.
3. Hold a ruler on the table edge with part sticking out. Flick the end and listen.
4. Touch the band to stop it. The sound stops when the vibration stops.

> *No vibration, no sound. Vibration makes sound.*

## Guided practice

1. Stretch plastic wrap tight over a bowl and sprinkle rice on top. Ask: What do you think will happen to the rice when the pot is banged nearby?
2. Hold the pot near the bowl and bang it with the spoon. Keep each bang short and away from anyone's ears.

2. Watch the rice jump. The sound made the plastic vibrate.
3. Try a soft tap and a loud bang. Record how the rice moved each time in the table. Ask: What happened and why?

| Sound | Prediction | How the rice moved |
|---|---|---|
| soft tap | | |
| loud bang | | |

> *The sound traveled through the air and made the plastic shake.*

## Worked examples

**Why does a plucked rubber band make a sound?**
Plucking makes it vibrate, and the vibration makes sound.

**Why did the rice jump when the pot was banged?**
The sound made the plastic wrap vibrate, which bounced the rice.

## Watch for these mistakes

**Mistake:** Sound comes from nothing.
**Fix:** Touch a speaker or your throat while making sound. Something is always vibrating.

**Mistake:** Things keep making sound after they stop moving.
**Fix:** Pluck the band, then hold it still. The sound stops right away.

**PARENT TIP** Bang pots for only a short time and not near anyone's ears, so the experiment stays fun and safe. Use latex-free rubber bands if anyone has a latex allergy. Pluck rubber bands gently and keep them away from faces and eyes. Rice is a choking hazard for babies, so keep it off the floor.

**GO FURTHER** Fill glasses with different amounts of water and tap each gently with a spoon. Listen for different sounds.

## ③ We Do It Together: 10 questions

> *Do these side by side. Read each question together, let your student answer, then read the answer and the "why" right below it and talk it through.*

**1.** Which is a loud sound?

**A** A leaf falling **B** A cat walking **C** Thunder

> **Answer: C** Thunder
> **Why:** Thunder is a big sound, so it is loud.

**2.** What is sound?

**A** What we hear **B** What we smell **C** What we taste

> **Answer: A** What we hear
> **Why:** Sound is anything we hear with our ears.

**3.** You shake a jar with beans inside. Why do you hear a sound?

**A** The beans hit the jar and make it vibrate **B** The beans grow

**C** The jar gets warm in your two warm hands today

> **Answer: A** The beans hit the jar and make it vibrate
> **Why:** The beans bump the jar, the jar vibrates, and you hear the rattle.

**4.** Which makes a sound by being hit?

**A** A balloon floating **B** A flute **C** A xylophone

> **Answer: C** A xylophone
> **Why:** You hit xylophone bars and they vibrate to make sound.

**5.** You place your hand on a guitar's body while someone strums. What do you feel?

**A** Nothing **B** The wood vibrating **C** The wood getting cold

> **Answer: B** The wood vibrating
> **Why:** The strings vibrate, and they make the wooden body vibrate too.

**5.** Sam wants to show that hitting harder makes a bigger vibration. What could he watch?

**A** How high rice jumps on a drum **B** How heavy the drum is **C** The color of the drum in the light

> **Answer: A** How high rice jumps on a drum
> **Why:** Bigger vibrations bounce the rice higher, so he can see the difference.

**6.** Look at the tuning fork. You tap it and dip it in water. What will you see?



tuning fork

**A** The water freezes into hard ice **B** Nothing happens **C** The water splashes and ripples

> **Answer: C** The water splashes and ripples
> **Why:** The tuning fork is vibrating. The vibration shakes the water.

**7.** Which animal sound is made by wings vibrating?

**A** A mosquito's whine **B** A lion's roar **C** A cow's moo

> **Answer: A** A mosquito's whine
> **Why:** A mosquito's wings beat very fast, and that makes its whine.

**8.** Lucas made a guitar from a box and rubber bands. He wants it to play a quieter song. What should he do?

**A** Pluck the bands as hard as he can **B** Add more boxes **C** Pluck the bands gently

> **Answer: C** Pluck the bands gently
> **Why:** Gentle plucks make small vibrations, and small vibrations make quiet sounds.

**9.** Pick the best way to make a quiet drum louder without a new drum.

**A** Hit it gently **B** Hit it harder with nothing touching the top **C** Hold the top still while hitting

> **Answer: B** Hit it harder with nothing touching the top
> **Why:** A harder hit and a free drum top make bigger vibrations and a louder sound.

## ④ You Try: 10 questions

*Now your student works alone. Check answers in the Answer Key at the end of this topic. Score: ____ / 10*

**1.** A cymbal is crashed. What can you see it do?

**A** Fold in half **B** Shimmer and shake **C** Stay totally still and quiet

**2.** Put your hand on your throat and sing. What do you feel?

**A** A buzzy shaking **B** Cold air on your hand **C** Nothing at all

**3.** Which part of a piano hits strings to make them vibrate?

**A** The legs **B** Little hammers inside **C** The long wooden bench

**4.** Plastic wrap is stretched over a bowl with salt on top. Lina claps loudly near it. The salt hops. What made the salt hop?

**A** The salt was too hot to stay still there **B** Lina blew on it **C** The sound made the plastic vibrate

**5.** Ken taps a pan softly and the rice on a nearby bowl barely moves. What should he do to make the rice jump more?

**A** Bang the pan louder **B** Tap even softer than before **C** Walk away

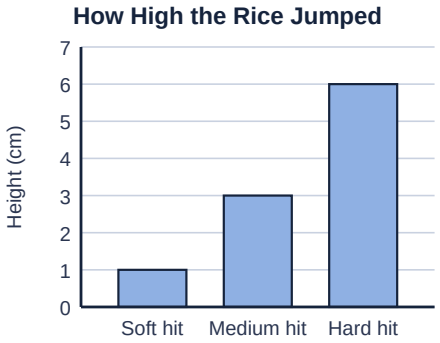
**6.** You touch a cat that is purring. What do you feel?

**A** The cat is wet **B** The cat is very still **C** A gentle vibration

**7.** Which tells you something is vibrating?

**A** It smells nice **B** It looks blurry and makes a hum **C** It is a bright color and very shiny

**8.** Grace hits a pan softly, then medium, then hard. She measures how high rice jumps on a nearby bowl. Look at the graph. What pattern does she see?




**A** The rice jumps more each time **B** The rice jumps the same each time

**C** The rice jumps less each time

**2.** Why can you hear a friend tapping on the other side of a wooden door?

**A** The door opens by itself **B** Light goes through the door

**C** The tapping makes the door vibrate, and that makes sound on your side

**3.** You want to tell a friend across the yard that it is time to come in, but you cannot shout. Which tool uses vibration to send a sound?

**A** Waving a flag **B** Ringing a bell **C** Turning on a flashlight

# Sound and vibration: Answers and explanations

## 1 Quick Check

1. Which one can make sound?
   **C A whistle you blow**
   Blowing makes air vibrate inside the whistle, and that makes sound.

2. When something vibrates, how does it move?
   **B Back and forth very fast**
   To vibrate means to move back and forth very fast.

3. Which word means a big sound?
   **C Loud**
   A loud sound is a big sound, like a shout.

4. Touch a speaker playing music. What do you feel?
   **B Shaking**
   A speaker vibrates to make music. You can feel it shake.

5. Which tool would best show that sound can make things vibrate?
   **A A drum with paper bits on top, near a loud sound**
   If a loud sound nearby makes the paper bits jump, you can see the sound made the drum vibrate.

6. A wind chime is moving in the wind and ringing. The wind stops and the chime goes still. What do you hear?
   **B Silence from the chime**
   When the chime stops vibrating, its sound stops.

7. Which instrument is played by hitting it to make it vibrate?
   **C Drum**
   You hit a drum so its top vibrates.

8. A big truck rumbles past. The glasses in the kitchen rattle. What made them rattle?
   **A The loud sound made them vibrate**
   Loud sounds can make materials vibrate, like glasses rattling.

9. A fan is spinning and the table it sits on hums. Lily moves the fan to the floor and the table stops humming. Why?
   **A The fan was making the table vibrate**
   The fan's shaking made the table vibrate. Without the fan, the table is still.

10. Which question could you test with a drum, rice and a spoon?
    **B Does a louder sound make the rice jump higher?**
    You can change how hard you hit and watch the rice to find the answer.

## ④ You Try

1. A cymbal is crashed. What can you see it do?
   **B Shimmer and shake**
   The cymbal vibrates after it is hit. You can see it shake.

2. Put your hand on your throat and sing. What do you feel?
   **A A buzzy shaking**
   Your throat vibrates when you sing. That buzzy feeling is the vibration.

3. Which part of a piano hits strings to make them vibrate?
   **B Little hammers inside**
   Pressing a key moves a hammer that hits a string. The string vibrates and makes sound.

4. Plastic wrap is stretched over a bowl with salt on top. Lina claps loudly near it. The salt hops. What made the salt hop?
   **C The sound made the plastic vibrate**
   Sound traveled through the air and made the plastic shake, so the salt hopped.

5. Ken taps a pan softly and the rice on a nearby bowl barely moves. What should he do to make the rice jump more?
   **A Bang the pan louder**
   A louder sound makes bigger vibrations, so the rice jumps more.

6. You touch a cat that is purring. What do you feel?
   **C A gentle vibration**
   A purr is a vibration in the cat's body that we hear and feel.

7. Which tells you something is vibrating?
   **B It looks blurry and makes a hum**
   Things that vibrate fast can look blurry, and they make sound.

8. Grace hits a pan softly, then medium, then hard. She measures how high rice jumps on a nearby bowl. Look at the graph. What pattern does she see?
   **A The rice jumps more each time**
   The bars get taller from soft to hard. Louder sounds make bigger vibrations, so the rice jumps higher each time.

9. Why can you hear a friend tapping on the other side of a wooden door?
   **C The tapping makes the door vibrate, and that makes sound on your side**
   The vibration travels through the wood and shakes the air on your side.

10. You want to tell a friend across the yard that it is time to come in, but you cannot shout. Which tool uses vibration to send a sound?
    **B Ringing a bell**
    A bell vibrates to make a loud sound that travels far.

THE FULL WORKBOOK

# Keep going with the full Science workbook

You just tried one topic. The full Grade 1 workbook has every topic below, each with a Quick Check, a lesson, We Do It Together, up to 90 You Try questions, Show What You Know and a full answer key.

1. Sound and vibration 1-PS4-1
2. Light through materials 1-PS4-3
3. Body parts that help living things 1-LS1-1
4. Parents helping their young 1-LS1-2
5. Like parent, like baby 1-LS3-1
6. Sun, moon and stars patterns 1-ESS1-1
7. Daylight through the seasons 1-ESS1-2
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