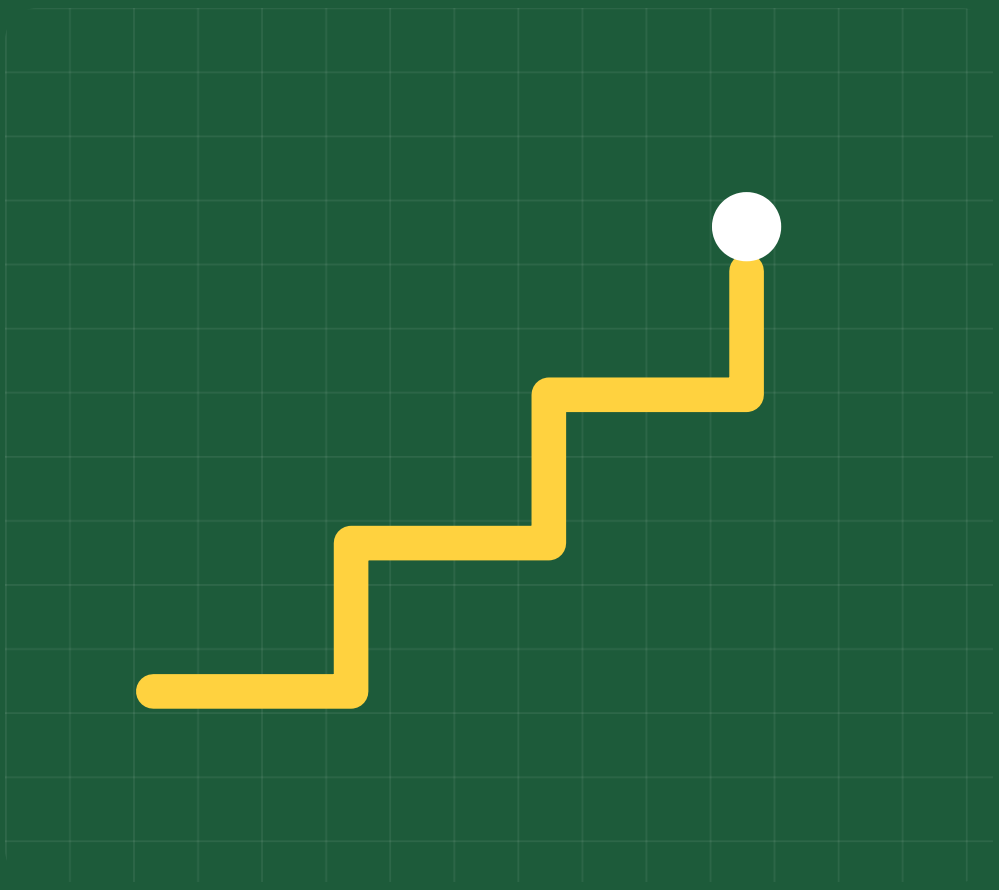
UpOnly Learning



GRADE 5

FREE SAMPLE WORKBOOK

Science Grade 5

One step at a time. · Ages 10–11 · Free sample: 1 of 8 topics

UO-SCI-5

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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No guaranteed results, and mistakes happen. Every student learns differently. We write and review every question and answer key carefully, and we still get things wrong. An answer key can be wrong, and a question can be worded badly or have two defensible answers. Check the answer key before you hand it over, and trust your own judgment over ours. Found a problem? **Photograph the page and email it to support@uponlylearning.com**. The picture tells us more than a description, and we fix it for every family.

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 5

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Topic 1 · Matter is made of tiny particles **6**

Particles too small to see explain dissolving, evaporating and air pressure 5-PS1-1

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Matter is made of tiny particles

The student will develop a model to describe that matter is made of particles too small to be seen, using evidence from dissolving, evaporation and air inflating a balloon.

① Quick Check

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

1. Which of these is a good definition of matter?

A Anything that is a solid or a liquid **B** Anything you can see clearly with your own eyes
C Anything that has mass and takes up space **D** Anything you could pick up and hold in your hand

2. A wet sidewalk dries on a sunny day. Where did the water go?

A Deep down into the concrete **B** It was used up by the sunlight **C** It turned into dust on the ground
D Into the air as water vapor

3. Which change shows matter turning into a gas you cannot see?

A A puddle drying up **B** Sugar sinking in water **C** Water freezing in a tray **D** Ice melting in a cup

4. Which word means a tiny piece of matter, much too small to see?

A Crystal **B** Bubble **C** Particle **D** Droplet

5. An open jar of nail polish remover is left on a table. Soon the whole room smells of it. Which model fits?

A Particles leave the jar and spread through the air **B** Particles stay in the jar, and you smell the jar itself
C The smell travels as a beam of light **D** The liquid soaks into the table and walls

6. Ruby says sugar disappears forever when it dissolves. What test would show it is still there?

A Look at the water closely with a flashlight **B** Stir the water much faster
C Weigh the water before and after adding sugar **D** Put the cup in a dark room overnight and check it

7. Ari has 120 g of water. After adding sugar and stirring, the mixture is 135 g. How much sugar did he add?

A 25 g **B** 15 g **C** 255 g **D** 135 g

8. Nia's wet paint dries on a poster. The paint's water evaporated. What happened to the water particles?

A They were destroyed by the air **B** They became part of the paper **C** They turned into the dry paint
D They moved into the air as a gas

2. Kofi stirs 5 g of drink mix into 300 g of water. The color spreads, and he says the mix is 'gone.' Which evidence best argues against him?

A The water feels cold to touch **B** The water now has color all through it

C The water level looks the same **D** The cup still sits on the table

3. Zoe weighs water and sugar, mixes them on day 1, and leaves the open cup until day 8. Look at her data table. Which explanation fits?

Sample	Mass (g)
Water	400
Sugar	50
Mixed, day 1	450
Mixed, day 8	390

A Both the sugar and the water were destroyed **B** About 60 g of water evaporated into the air

C The scale broke sometime during the week **D** Some sugar evaporated, but no water did

② Learn It

MATERIALS a clear glass of water; a spoon of sugar or salt; a balloon; a damp paper towel; a plate; a kitchen scale (optional)
Safety: do not taste experiment materials; if anyone has a latex allergy, use latex-free balloons

Key words

- **matter**: anything that has mass and takes up space
- **particle**: a tiny piece of matter, much too small to see
- **dissolve**: to break apart into particles too small to see and spread through a liquid
- **evaporate**: to change from a liquid into a gas
- **model**: a drawing or object that shows how something works

Warm-up

1. Stir a spoon of sugar into the water until it disappears. Ask: Where did it go?

> *The sugar seems to vanish, but scientists know it's still there. Let's find out how.*

Teach

1. Explain that all matter is made of tiny particles too small to see, even with a magnifying glass.
2. Dissolving: the sugar broke into particles that spread through the water. Ask: What do you think the sugar water will weigh? Weigh the cup of water and the sugar, stir, then weigh again and record each mass in a table. Ask: What happened and why? The total is the same, because the sugar particles are still there.

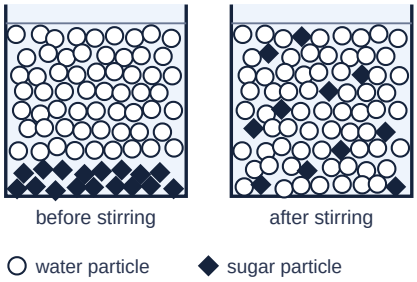
Sample	Mass (g)
Cup of water	
Sugar	
Sugar water	

3. Evaporation: wipe a damp paper towel on a plate. In a few minutes the wet streak disappears; water particles moved into the air as a gas.
4. Air: blow up the balloon. Air is matter; its particles push on the inside of the balloon and inflate it.
5. Draw a model: dots spread out in a glass for dissolved sugar; dots leaving a puddle for evaporation; dots bouncing inside a balloon.

> *Things we can't see are still made of particles. Our models use dots to show them.*

Guided practice

1. Draw particle models for: sugar before stirring (dots clumped), after stirring (dots spread).



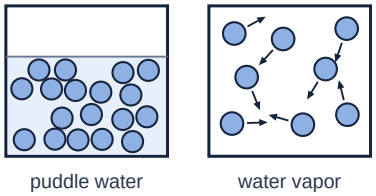
2. Draw air particles in an inflated balloon and a deflated balloon.
3. Discuss what evidence shows the particles are still there (the total weight stays the same, crystals return when the water evaporates, the balloon stays inflated).

> *Let's draw what we would see if we had super-zoom eyes.*

Worked examples

Salt is stirred into water and disappears. How do we know it is still there?
The mass of the water plus salt is the same as before mixing, and if the water evaporates, salt crystals are left behind. The salt broke into particles too small to see.

A puddle is gone after a sunny afternoon. Where did the water go?



It evaporated: water particles moved into the air as an invisible gas (water vapor).

Watch for these mistakes

Mistake: When sugar dissolves, it disappears and is gone.
Fix: The particles are still in the water, just too small and spread out to see. Weighing shows the mass is still there.

Mistake: Air is nothing, it isn't matter.
Fix: Air fills and pushes out a balloon, so it takes up space. Air is made of gas particles and is matter.

PARENT TIP Weighing with a kitchen scale is the strongest evidence; if you have one, weigh the water and salt before and after mixing.

GO FURTHER Put a drop of food coloring (it can stain, so cover the table) in a glass of still water and watch it spread over 10 minutes. Draw a particle model of what is happening.

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 of these is NOT matter?

A Light **B** Juice **C** Steam **D** Sand

> **Answer: A** Light
> **Why:** Light has no mass and does not take up space, so it is not matter. Steam, sand and juice are matter.

2. Leo dissolves a spoon of salt in a cup of water. How could he get the salt back?

A Pour in more water **B** Shake the cup very hard **C** Let the water evaporate

D Put the cup in the freezer

> **Answer: C** Let the water evaporate
> **Why:** When the water evaporates, the salt particles stay behind and form crystals you can see again.

3. A puddle disappears after a warm afternoon. Which word describes this?

A Condensing **B** Solidifying **C** Evaporating **D** Dissolving

> **Answer: C** Evaporating
> **Why:** The water evaporated, which means it changed from a liquid into a gas in the air.

4. A drop of food coloring slowly spreads through a glass of still water. What does this show?

A The color is being destroyed **B** The water is slowly turning into color **C** The glass is leaking color in

D Color particles move and spread out

> **Answer: D** Color particles move and spread out
> **Why:** Tiny particles of coloring move and mix among the water particles until the color is everywhere.

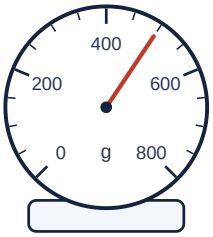
5. Which statement about dissolving is correct?

A The dissolved material is destroyed **B** The dissolved material turns into more water

C The dissolved material loses all its mass **D** The dissolved material is still present

> **Answer: D** The dissolved material is still present
> **Why:** Dissolving only breaks a material into tiny particles. The particles and their mass are still there.

5. The scale shows the mass of a cup of water. Then 40 g of salt is added and stirred until it is gone from sight. What should the scale read now?



A 580 g **B** 460 g **C** 540 g **D** 500 g

> **Answer: C** 540 g
> **Why:** The scale shows 500 g. 500 + 40 = 540 g. The salt particles are still in the water, so their mass is still there.

6. Which is the best evidence that water vapor is in the air of a room?

A Drops form on a cold can of juice **B** The room feels warm **C** You can see dust floating in sunlight **D** The windows are all open

> **Answer: A** Drops form on a cold can of juice
> **Why:** Water vapor particles in the air cool and collect on the cold can as liquid drops.

7. A basketball is weighed flat, then weighed again after it is pumped full. What happens to its mass?

A It goes down a little **B** It goes up a little **C** It stays exactly the same **D** It drops to zero

> **Answer: B** It goes up a little
> **Why:** Air has mass. Pumping in more air particles makes the ball a little heavier.

8. Hana claims that steam from a kettle is 'nothing' because it disappears a little above the spout. What is the best reply?

A The steam turns into light near the ceiling **B** The water particles spread out into the air as a gas **C** She is right; the water is used up as heat **D** The steam sinks back down into the kettle each time it cools

> **Answer: B** The water particles spread out into the air as a gas
> **Why:** The cloud you see is tiny drops. They evaporate and spread out as invisible water vapor, which is still matter.

9. Which pair of observations together best supports 'dissolved sugar is still in the water'?

A The water is clear and still wet **B** The cup is cold, and the spoon is shiny **C** Mass goes up, and sugar is left after evaporating **D** The water looks clear, and it sits still on the table

> **Answer: C** Mass goes up, and sugar is left after evaporating
> **Why:** Both a mass gain and sugar left after evaporating show the sugar's particles were there the whole time.

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. Which of these has mass?

A A happy thought **B** An echo in a cave **C** The air in a room **D** A dream you had

2. Which of these is matter?

A A rainbow after rain **B** The air in a tire **C** A shadow on a wall **D** The sound of a drum

3. In a science model, what do small dots usually stand for?

A Particles of matter **B** Spots of dirt **C** Drops of light **D** Holes in the material

4. A cup of water is left uncovered for 2 days. Look at the table. How much water evaporated?

Day	Mass (g)
Day 1	180
Day 3	165

A 25 g **B** 15 g **C** 165 g **D** 345 g

5. Which of these is the best reason we call air matter?

A Pumping it into a ball makes the ball heavier **B** It carries sound from place to place

C It is all around us outside **D** It gets warm on sunny summer days

6. Elena weighs a sealed plastic bottle of soda, opens it, and lets the fizz escape for an hour. It weighs less. Why?

A The plastic got thinner **B** The soda turned into light **C** The scale got colder

D Gas particles left the bottle

7. Which is the best claim about a glass of clear salt water?

A It holds water particles only **B** It holds only salt particles and no water **C** It holds no particles at all

D It holds both water and salt particles

8. Two identical cups each have 200 g of water. Cup A gets 20 g of salt; Cup B gets nothing. Both sit open in the sun until dry. What is left in each cup?

A Water in A; salt in B **B** Nothing at all in either cup **C** Salt crystals in A; nothing in B

D Salt crystals in both of the cups

2. Which observation would make you doubt that a powder truly dissolved in water?

A Crystals are left behind when the water evaporates **B** The water looks clear when you look through it

C The powder settles at the bottom after stirring **D** The mixture weighs more than the water alone did

3. Mo says, 'Air is nothing, so an empty-looking cup pushed upside down into water will fill with water.' What actually happens, and what does it show?

A The cup floats away, so air is lighter than water **B** Water stays mostly out, so air takes up space

C The cup sinks fast, so air is heavy **D** Water fills the cup, so air is not matter

Matter is made of tiny particles: Answers and explanations

① Quick Check

1. Which of these is a good definition of matter?
   C Anything that has mass and takes up space
   Matter is anything with mass that takes up space, even if you cannot see it, like air.

2. A wet sidewalk dries on a sunny day. Where did the water go?
   D Into the air as water vapor
   The water evaporated. Its particles moved into the air as an invisible gas called water vapor.

3. Which change shows matter turning into a gas you cannot see?
   A A puddle drying up
   When a puddle dries, the water evaporates into an invisible gas in the air.

4. Which word means a tiny piece of matter, much too small to see?
   C Particle
   A particle is a tiny piece of matter. Crystals, bubbles and drops are big enough to see.

5. An open jar of nail polish remover is left on a table. Soon the whole room smells of it. Which model fits?
   A Particles leave the jar and spread through the air
   The liquid evaporates, and its particles spread among the air particles all through the room.

6. Ruby says sugar disappears forever when it dissolves. What test would show it is still there?
   C Weigh the water before and after adding sugar
   If the mass goes up by the sugar's mass, the sugar's particles must still be in the water.

7. Ari has 120 g of water. After adding sugar and stirring, the mixture is 135 g. How much sugar did he add?
   B 15 g
   135 - 120 = 15 g. The extra mass is the sugar, which is still in the water.

8. Nia's wet paint dries on a poster. The paint's water evaporated. What happened to the water particles?
   D They moved into the air as a gas
   The water particles left the paint and spread into the air as water vapor.

9. Kofi stirs 5 g of drink mix into 300 g of water. The color spreads, and he says the mix is 'gone.' Which evidence best argues against him?
   B The water now has color all through it
   The color in every part of the water comes from mix particles spread throughout. They are not gone.

10. Zoe weighs water and sugar, mixes them on day 1, and leaves the open cup until day 8. Look at her data table. Which explanation fits?
    B About 60 g of water evaporated into the air
    450 - 390 = 60 g. Water evaporates, but sugar stays behind, so the lost mass was water.

④ You Try

1. Which of these has mass?

   C The air in a room

   Air is matter, so it has mass. Dreams, thoughts and echoes are not matter.

2. Which of these is matter?

   B The air in a tire

   Air has mass and takes up space inside the tire, so it is matter. Shadows, sounds and rainbows are not.

3. In a science model, what do small dots usually stand for?

   A Particles of matter

   Scientists draw dots in models to stand for particles that are too small to see.

4. A cup of water is left uncovered for 2 days. Look at the table. How much water evaporated?

   B 15 g

   180 - 165 = 15 g. That much water moved into the air as water vapor.

5. Which of these is the best reason we call air matter?

   A Pumping it into a ball makes the ball heavier

   Adding air adds mass, and air takes up space in the ball. Things with mass that take up space are matter.

6. Elena weighs a sealed plastic bottle of soda, opens it, and lets the fizz escape for an hour. It weighs less. Why?

   D Gas particles left the bottle

   The bubbles are gas particles. When they escape into the air, they take their mass with them.

7. Which is the best claim about a glass of clear salt water?

   D It holds both water and salt particles

   Salt water is a mix of water particles and dissolved salt particles, even though it looks clear.

8. Two identical cups each have 200 g of water. Cup A gets 20 g of salt; Cup B gets nothing. Both sit open in the sun until dry. What is left in each cup?

   C Salt crystals in A; nothing in B

   Water evaporates from both cups. Only Cup A had salt particles, and they stay behind as crystals.

9. Which observation would make you doubt that a powder truly dissolved in water?

   C The powder settles at the bottom after stirring

   If the powder sinks and piles up, its particles did not spread out among the water particles, so it did not dissolve.

10. Mo says, 'Air is nothing, so an empty-looking cup pushed upside down into water will fill with water.' What actually happens, and what does it show?

    B Water stays mostly out, so air takes up space

    Air trapped in the cup takes up space and keeps most water out. This shows air is matter.

THE FULL WORKBOOK

Keep going with the full Science workbook

You just tried one topic. The full Grade 5 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. Matter is made of tiny particles 5-PS1-1
2. Identifying materials by properties 5-PS1-3
3. Mixtures and new substances 5-PS1-4
4. Gravity pulls down 5-PS2-1
5. What plants need to grow 5-LS1-1
6. Food webs and decomposers 5-LS2-1
7. Shadows, day and night 5-ESS1-2
8. Fair tests that improve a prototype 3-5-ETS1-3

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One step at a time.

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