MINISTRIES FREE ACADEMY

Grade 5

Science

Practice Workbook · Quarter 1 Practice

WEEKS 1–3

Free Forever · Print & Practice

A companion paper resource — nothing to log in to.

This workbook is optional and does not sync or count toward any record.

MINISTRIES FREE ACADEMY

How to Use This Workbook

This is a free, printable companion to the Grade 5 Science course. Work the pages with a pencil at your own pace. Every answer is in the **Answer Key** at the back — check your work when you finish a page.

There is nothing to sign in to and nothing is tracked. This paper practice is entirely optional and is meant for extra review or screen-free learning. It does not replace or affect the on-screen course in any way.

What's inside — Weeks 1–3:

- Matter and Its Particles

Name: ____________________ Grade / Class: ____________ Date started: ____________

How Scientists Study Matter

Matter and Its Particles — Describe how scientists use observation and evidence, and model matter as made of particles too small to see.

LEARN

This year you study MATTER, forces, energy, living things, and Earth and space. You will think like a scientist: OBSERVE carefully, ask questions, and use EVIDENCE to explain what you find. We begin with a big idea you cannot see with your eyes: everything around you is made of tiny PARTICLES.

A scientist does not just guess. They OBSERVE (watch closely), then explain using EVIDENCE - facts that show an idea is true. A big idea backed by evidence: all MATTER is made of PARTICLES far too small to see. A particle is a tiny piece of matter. There are so many in a single drop of water that you could never count them. You cannot see the particles, but evidence shows they are there - and this year you will gather that evidence.

Today you started thinking like a scientist:

- OBSERVE closely and explain with EVIDENCE;
- all MATTER is made of PARTICLES too small to see. Tomorrow you find evidence for those particles by watching sugar DISSOLVE. to finish the day.

1. Circle each card to learn the word. Then commit the card that means MATTER.

Flip every card. When you are sure which one means MATTER, commit it.

Circle the correct one: **particle** **evidence** **matter** **observe**

2. All matter is made of...

The big idea of this unit.

- (A) tiny particles too small to see
- (B) one solid piece with no parts
- (C) only the colors we can see
- (D) empty space and nothing more

3. A PARTICLE is...

Think about its size.

- (A) a large block you can hold
- (B) a kind of bright light
- (C) a tool scientists use
- (D) a piece of matter too small to see

4. **In science, EVIDENCE means...**

What backs up an idea?

- (A) facts that show an idea is true
- (B) a lucky guess about the answer
- (C) the loudest opinion in the room
- (D) how pretty something looks

5. **Complete the big idea.**

Too small to see.

All matter is made of tiny ________ that are too small to see.

word bank: particles · colors · sounds · shadows

6. **Match each science word to its meaning.**

Draw a line from each item on the left to its match on the right.

Matter ·	· to watch closely
Particle ·	· a piece too small to see
Observe ·	· facts that show an idea is true
Evidence ·	· anything made of particles

7. **Why do scientists trust the idea that matter is made of particles, even though they cannot see them?**

What do scientists rely on?

- (A) because a book said so once
- (B) they do not really trust it
- (C) because evidence supports it
- (D) they simply hope it is true

8. **A good scientist explains what they see by using...**

Which one?

- (A) the color they like
- (B) evidence
- (C) a wild guess
- (D) the time of day

Particles on the Move

Matter and Its Particles — Model the particles of matter as always moving with space between them, using everyday evidence.

LEARN

Yesterday you learned all matter is made of PARTICLES too small to see. Today: those particles are not still. They are always MOVING, and there is empty SPACE between them. You cannot see this directly, but everyday evidence shows it.

Two key ideas about particles:
- they are always MOVING;
- there is SPACE between them. EVIDENCE you can notice: when someone bakes bread, the smell reaches the far side of the house. The smell particles leave the bread, move through the air, and spread out until some reach your nose. A drop of food coloring slowly spreads through still water the same way - moving particles, spreading on their own. When particles spread out evenly on their own, we call it DIFFUSION.

Today you added to the particle model:

- particles are always MOVING;
- there is SPACE between them;
- DIFFUSION (like a smell spreading) is evidence of moving particles. Tomorrow you practice spotting particle evidence all around you. to finish the day.

1. The particles that make up matter are...

Still, or moving?

- (A) only moving when you push them
- (B) frozen and never moving
- (C) always moving
- (D) glued tightly in place forever

2. You smell cookies from another room. The BEST explanation is that...

What carries the smell?

- (A) your nose imagined it
- (B) moving particles spread through the air to your nose
- (C) the smell teleports instantly
- (D) the room got warmer

3. When particles spread out evenly on their own, it is called...

Today's new word.

- (A) a shadow
- (B) gravity
- (C) freezing
- (D) diffusion

4. **Complete the model.**

What is between particles?

Particles of matter are always moving, and there is empty ________ between them.

word bank: space · glue · metal · light

5. **Put the steps in order for how a baking smell reaches your nose.**

Moving particles travel from the source to you.

Number these from 1 to 4 in the correct order.

- ☐ They spread across the room
- ☐ Some particles reach your nose
- ☐ Smell particles leave the warm bread
- ☐ The particles move out through the air

6. **Match each idea to its meaning.**

Draw a line from each item on the left to its match on the right.

Diffusion ·	· the gap between particles
Particle ·	· a tiny piece of matter
Evidence ·	· facts that show an idea is true
Space ·	· particles spreading out on their own

7. **Which is the BEST evidence that particles move?**

Which one shows spreading on its own?

- (A) a rock stays in one spot
- (B) food coloring spreads through still water
- (C) a wall keeps standing
- (D) a book has a cover

8. **The particle model says matter is made of particles that are...**

Two ideas from today.

- (A) moving, with space between them
- (B) still, packed with no gaps
- (C) alive and breathing
- (D) too big to fit anywhere

Spotting Particle Evidence

Matter and Its Particles — Practice identifying everyday observations that are evidence of moving particles, and sort evidence from non-evidence.

LEARN

You have two big ideas now: matter is made of PARTICLES too small to see, and those particles are always MOVING with SPACE between them. Today you practice spotting the EVIDENCE for moving particles in everyday life - and telling real evidence from things that are not evidence at all.

Remember DIFFUSION: particles spreading out on their own. When you notice something spread by itself - a smell drifting across a room, color spreading through still water, sugar sweetening a whole glass - that is evidence of moving particles. What is NOT evidence? Things that just sit there. A rock staying put, a wall standing, a closed book - none of these show particles moving on their own. A good scientist sorts the evidence from the rest.

Today you practiced like a scientist:

- you spotted evidence of moving particles (smells, spreading color, dissolving sugar);
- you sorted real evidence from things that just sit still. Tomorrow you use the particle model to explain an everyday observation of your own. to finish the day.

1. **Which observation is evidence that particles move on their own?**

   Look for spreading.

   (A) a brick stays in the wall all day
   (B) a rock sits on the ground
   (C) a chair keeps its shape
   (D) perfume spreads across a still room

2. **Sort each observation: is it evidence that particles move, or not?**

   Write each item under the correct heading.

   items: food coloring spreads through still water · the smell of soup fills the kitchen · tea slowly colors a cup of hot water · a stone rests on the table · a shut door stays in its frame · a brick keeps its shape

EVIDENCE OF MOVING PARTICLES	NOT EVIDENCE

3. **Why is 'a rock sitting still' NOT evidence that particles move?**

   What is missing?

   (A) rocks are not really matter
   (B) nothing is spreading out on its own
   (C) rocks have no particles at all
   (D) rocks are too heavy to study

4. **Name what you observed.**

Particles spreading on their own.

When the smell of cookies spreads across a room on its own, the spreading is called ________ .

word bank: diffusion · gravity · hardness · freezing

5. **Put the steps in order for a drop of food coloring spreading in still water.**

Moving particles spread on their own.

Number these from 1 to 4 in the correct order.

- ☐ The whole glass turns one even color
- ☐ Its moving particles begin to spread
- ☐ The color reaches farther through the water
- ☐ A drop of coloring lands in still water

6. **Sugar stirred into water disappears but the water tastes sweet everywhere. The BEST explanation is that...**

Where did the sugar go?

- (A) the water pushed the sugar out
- (B) the sugar turned into water
- (C) the sugar broke into particles that spread through the water
- (D) the sugar was destroyed

7. **Match each observation to what it shows.**

Draw a line from each item on the left to its match on the right.

A smell drifts across the house ·	· not evidence of movement
Coloring spreads in still water ·	· particles spread through the water
Sugar sweetens a whole glass ·	· particles spread on their own
A rock sits unmoved ·	· particles move through the air

8. **Evidence that particles are moving is when something...**

One key idea from today.

- (A) spreads out on its own
- (B) has a bright color
- (C) stays perfectly still
- (D) is very heavy

Explaining the World with Particles

Matter and Its Particles — Apply the particle model to explain everyday observations, choosing the explanation best supported by evidence.

LEARN

A scientific model is only useful if it EXPLAINS what you see. Today you use the particle model - matter is made of moving particles with space between them - to explain real, everyday observations. For each one, you pick the explanation the evidence supports best.

When you see something happen, ask: what are the PARTICLES doing? - A smell reaches you? Moving particles spread through the air to your nose. - A puddle dries up? Water particles move into the air and drift away. - Sugar vanishes in tea but it still tastes sweet? Sugar broke into particles that spread all through the water. The particle model lets you explain things you cannot even see directly. That is its power.

Today you used the particle model to explain the world:

- drying puddles, squeezed balloons, spreading smells - all explained by moving particles and the space between them;
- an explanation tells WHY, using the particles, not just what you saw. Tomorrow you prove the whole Week 1 in the mastery check. to finish the day.

1. **A puddle slowly dries up on a warm day. Using the particle model, the BEST explanation is...**

Where did the water go?

- (A) the ground ate the water
- (B) the water was destroyed and is gone forever
- (C) water particles moved into the air and drifted away
- (D) the puddle was never really there

2. **You can squeeze an air-filled balloon smaller. The particle model explains this because...**

Remember the space between particles.

- (A) air has no particles to squeeze
- (B) there is space between air particles, so they can be pushed closer
- (C) the balloon makes new air
- (D) squeezing destroys the air

3. **Finish the explanation.**

What spreads to your nose?

You can smell dinner from another room because moving ________ spread through the air to your nose.

word bank: particles · shadows · colors · sounds

4. **Can the particle model explain things you cannot see directly, like why a smell spreads?**

Circle one: **YES** / **NO**

5. **Sort each statement: is it a good particle-model explanation, or not?**

Write each item under the correct heading.

items: the smell spread as particles moved through the air · the puddle dried as water particles left into the air · air squeezed smaller because of space between particles · the water just disappeared by magic · the smell teleported across the house · the sugar was destroyed when it vanished

GOOD EXPLANATION	NOT A GOOD EXPLANATION

6. **Which of these is a real EXPLANATION, not just a description?**

An explanation tells WHY using the particles.

- (A) I smelled something
- (B) moving particles spread through the air until some reached my nose
- (C) there was a smell in the air
- (D) the smell got to me somehow

7. **Match each observation to its particle-model explanation.**

Draw a line from each item on the left to its match on the right.

A puddle dries up ·	· water particles move into the air
A balloon squeezes smaller ·	· there is space between particles
A smell fills the house ·	· particles move through the air
Sugar sweetens all the tea ·	· particles spread through the water

8. **To explain an observation with the particle model, you describe what the...**

One idea from today.

- (A) time of day is
- (B) weather is doing outside
- (C) particles are doing
- (D) color of the object is

Week 1 Mastery: The Particle Model

Matter and Its Particles — Demonstrate mastery of the particle model: matter is made of moving particles with space between them, shown by everyday evidence.

LEARN

This week you learned to think like a scientist and built the PARTICLE MODEL: all matter is made of particles too small to see, always moving, with space between them. Today you prove it. The last question is a TRANSFER item: use the model to explain a result you have not seen written out before.

Before the check, remember:
- all matter is made of PARTICLES too small to see;
- particles are always MOVING, with SPACE between them;
- DIFFUSION (a smell spreading, color spreading in water) is evidence they move;
- to explain with the model, describe what the particles are doing.

You finished Week 1 and built the particle model. You can now:

- model matter as tiny particles too small to see;
- explain that particles are always moving with space between them;
- use diffusion as evidence;
- and explain everyday observations with the model. Next week: you watch sugar DISSOLVE and gather more evidence for particles. to finish Week 1.

WEEK 1 MASTERY CHECK

1. **All matter is made of...**
   - (A) tiny particles too small to see
   - (B) one solid piece that has no smaller parts at all
   - (C) only the colors that our eyes are able to see
   - (D) empty space

2. **The particles that make up matter are...**
   - (A) alive and breathing
   - (B) always moving, with space between them
   - (C) too big to see
   - (D) frozen still and packed tight with no gaps at all

3. **You smell bread baking from another room. This is evidence that...**
   - (A) moving particles spread through the air to you
   - (B) the bread sent out a warm glowing light to reach you
   - (C) your nose simply imagined the whole smell on its own
   - (D) the room slowly got a little bit warmer over time

4. **When particles spread out evenly on their own, it is called...**

   (A) gravity pulling everything down to the floor
   (B) freezing into a hard solid block
   (C) a long dark shadow forming
   (D) diffusion

5. **You can squeeze a balloon full of air a bit smaller. This works because...**

   (A) squeezing destroys some of the air that is inside
   (B) there is space between the air particles
   (C) the balloon keeps making brand-new air to move
   (D) air is not really matter and has nothing in it

6. **Which observation is NOT evidence that particles move?**

   (A) food coloring spreading through water
   (B) perfume spreading across a still room
   (C) a stone resting still on the table
   (D) a smell drifting through the whole house

7. **TRANSFER: Sugar stirred into water disappears from sight, yet the water tastes sweet in every sip. The best explanation is that...**

   (A) the sugar was completely destroyed by the stirring
   (B) the sugar broke into particles that spread through the water
   (C) the sugar turned all the way into plain water
   (D) the sugar sank straight down and now sits only at the very bottom

Where Does the Sugar Go?

Matter and Its Particles — Use the particle model to explain that dissolved matter does not disappear but spreads out as particles.

LEARN

Stir a spoon of sugar into a glass of water and watch. Soon you cannot see the sugar at all. Is it gone? This week you use the particle model to answer that - and the answer is surprising.

When sugar DISSOLVES, it does not disappear. The sugar breaks into PARTICLES far too small to see, and those particles spread out evenly through the water. You cannot see them, but they are still there. How do we know? The water TASTES sweet everywhere you sip - that is the sugar particles. Dissolving is the particle model in action.

Today you saw the particle model in action:

- dissolved sugar does not disappear - it breaks into particles too small to see;
- the sweet taste everywhere is evidence the particles are still there. Tomorrow you find a SECOND piece of evidence: the dissolved sugar still has weight. to finish the day.

1. When sugar dissolves in water and you cannot see it, the sugar has...

Did it really vanish?

- (A) been destroyed completely
- (B) broken into particles spread through the water
- (C) sunk and left the glass
- (D) turned into plain water

2. How can you tell dissolved sugar is still in the water?

Use a sense.

- (A) the water tastes sweet everywhere
- (B) the water floats upward
- (C) the water turns bright red
- (D) the water gets much colder

3. Name what happened.

Sugar spreads through water.

When sugar breaks into tiny particles and spreads through water, we say it has ________ .

word bank: dissolved · frozen · vanished · melted

4. After sugar dissolves and you cannot see it, is the sugar still in the water?

Circle one: **YES** / **NO**

5. **Put the steps in order for sugar dissolving in water.**

From spoonful to sweet water.

Number these from 1 to 4 in the correct order.

- ☐ The particles spread out through the water
- ☐ The sugar breaks into tiny particles
- ☐ Every sip of the water tastes sweet
- ☐ A spoon of sugar drops into the water

6. **Match each idea to its meaning.**

Draw a line from each item on the left to its match on the right.

Dissolve ·	· a piece too small to see
Sweet taste ·	· evidence the sugar is still there
Particle ·	· break into particles and spread through a liquid
Spread out ·	· move evenly through the water

7. **Dissolving shows the particle model because the sugar...**

What do the particles do?

- (A) turns into a gas
- (B) disappears for good
- (C) becomes a new color
- (D) breaks into particles that spread out

The Weight Tells the Truth

Matter and Its Particles — Use weight as evidence that dissolved matter is still present, supporting the particle model.

LEARN

Yesterday the sweet taste showed dissolved sugar is still in the water. But taste is not the only clue. Today you find a second, stronger piece of evidence: the dissolved sugar still has WEIGHT.

Imagine you put a glass of water on a scale: it reads 200 grams. You add 20 grams of sugar and stir until the sugar disappears from sight. What does the scale read now? 220 grams - the water PLUS the sugar. The sugar did not vanish; its particles are still in the glass, and they still WEIGH something. Weight is powerful evidence: matter you cannot see still has weight, so it must still be there.

Today you added the strongest evidence:

- dissolved sugar still has WEIGHT (200 g + 20 g = 220 g);
- matter you cannot see still weighs something, so it is still there. Tomorrow you practice using both clues - taste and weight - to reason about dissolving. to finish the day.

1. A 200 g glass of water has 20 g of sugar stirred in until it disappears. The scale now reads...

Add the parts.

- (A) 220 g
- (B) 200 g
- (C) 20 g
- (D) 180 g

2. Why does the weight stay the same even after the sugar disappears from sight?

Where are the particles?

- (A) the scale is broken
- (B) weight is magic
- (C) the sugar particles are still in the glass
- (D) the water made new weight

3. Complete the evidence.

What does dissolved matter still have?

Even after sugar dissolves and you cannot see it, the particles are still there because the mixture still has ________ .

word bank: weight · color · sound · light

4. **Which TWO clues both show dissolved sugar is still in the water?**

Think taste and scale.

- (A) the sound and the temperature
- (B) the shape and the size of the glass
- (C) the sweet taste and the added weight
- (D) the color and the smell

5. **Match each clue to what it shows.**

Draw a line from each item on the left to its match on the right.

Sweet taste everywhere ·	· dissolved matter is still there
Scale reads 220 g ·	· sugar particles spread through the water
Cannot see the sugar ·	· the particles are too small to see
Particle model ·	· the sugar still has weight

6. **Dissolved sugar still has weight. This is evidence that the sugar...**

One idea from today.

- (A) weighs nothing now
- (B) turned into water
- (C) disappeared for good
- (D) is still in the water

Dissolve or Not?

Matter and Its Particles — Practice predicting what dissolves and reasoning from taste and weight evidence that dissolved matter is still present.

LEARN

Not everything dissolves in water. Some things break into particles and spread out; others just sit there or float. Today you practice predicting which is which, and you use your two clues - taste and weight - to reason like a scientist.

DISSOLVES: the material breaks into particles that spread evenly through the water and seem to disappear. Sugar and salt dissolve. DOES NOT dissolve: the material stays in visible pieces or floats. Sand sinks and stays as grains; oil floats on top; a pebble just sits there. When something dissolves, remember: it is still there. The taste and the weight prove it.

Today you practiced reasoning about dissolving:

- you predicted what dissolves (sugar, salt, drink mix) and what does not (sand, oil, pebble);
- you used taste and weight to prove dissolved matter is still there. Tomorrow you apply this to explain a real everyday puzzle. to finish the day.

1. **Sort each material: does it dissolve in water, or not?**

Write each item under the correct heading.

items: table sugar · table salt · powdered drink mix · beach sand · cooking oil · a small pebble

DISSOLVES	DOES NOT DISSOLVE

2. **You stir salt into water until you cannot see it. You should predict the salt water will...**

Use what you know about dissolving.

- (A) have no taste at all
- (B) turn into a solid block
- (C) weigh less than the water alone
- (D) taste salty and weigh more than the water alone

3. **A glass of water weighs 150 g. After stirring in 10 g of drink mix until it vanishes, the glass weighs about...**

The mix is still there.

- (A) 140 g
- (B) 10 g
- (C) 160 g
- (D) 150 g

4. **Finish the reasoning.**

Two clues prove it.

Dissolved sugar is still in the water because the water still tastes sweet and still has more ________ .

word bank: weight · color · noise · shape

5. **Put the scientist's steps in order to prove dissolved sugar is still there.**

Observe, then explain with evidence.

Number these from 1 to 4 in the correct order.

- ☐ Conclude the sugar is still there as particles
- ☐ Notice the water tastes sweet and weighs more
- ☐ Watch the sugar disappear from sight
- ☐ Weigh the water, then stir in the sugar

6. **How is sand in water DIFFERENT from sugar in water?**

Think about what you can see.

- (A) sand makes the water weigh less
- (B) sand turns the water into a gas
- (C) sand tastes sweeter than sugar does
- (D) sand stays in visible grains instead of spreading into particles

7. **When a material dissolves, the best proof it is still there is that the water...**

One idea from today.

- (A) tastes of it and weighs more
- (B) makes a sound
- (C) looks empty
- (D) feels colder

Explaining the Disappearing Act

Matter and Its Particles — Apply the particle model and weight evidence to explain real dissolving situations and correct a common confusion.

LEARN

A friend says, 'When sugar dissolves, it is just gone.' You know better now. Today you use the particle model and the weight evidence to explain real dissolving situations - and to correct that common confusion.

To explain a dissolving puzzle, point to the PARTICLES and the EVIDENCE:

- the material broke into particles too small to see;
- those particles spread evenly through the water;
- the sweet or salty TASTE shows they are there;
- the added WEIGHT shows they are there. 'Disappeared from sight' is not the same as 'gone.' The particle model explains where it really went.

Today you explained dissolving like a scientist:

- dissolved matter is not gone - it spread into particles;
- the taste and the weight are your evidence;
- 'out of sight' is not the same as 'gone.'

Tomorrow you prove the whole week in the Week 2 mastery check. to finish the day.

1. **Your friend says dissolved sugar is 'just gone.' The best correction is...**

   Use the evidence.

   (A) it broke into particles that spread through the water and still weighs the same
   (B) the sugar turned into water
   (C) the sugar floated out of the glass
   (D) they are right, it is gone

2. **You weigh a sealed bottle of water, shake in drink powder until it vanishes, and weigh it again. The weight...**

   Nothing left the sealed bottle.

   (A) drops a lot
   (B) goes to zero
   (C) doubles by itself
   (D) stays the same, powder and all

3. **Sort each statement: is it a GOOD explanation of dissolving, or not?**

Write each item under the correct heading.

items: the salt broke into particles spread through the water · the water still weighs more, so the sugar is there · it tastes sweet everywhere, so the particles spread · the sugar was destroyed by the water · the sugar simply vanished into nothing · the water magically ate the salt

GOOD EXPLANATION	NOT A GOOD EXPLANATION

4. **Finish the explanation.**

Where did it go?

Dissolved salt did not disappear; it broke into ________ that spread through the water.

word bank: particles · bubbles · shadows · colors

5. **Iced tea tastes sweet from the first sip to the last. The particle model explains this because...**

Why is every sip sweet?

- (A) the tea made its own sugar
- (B) the sugar sat only at the bottom
- (C) the ice added the sweetness
- (D) the sugar particles spread evenly through all the tea

6. **Match each puzzle to its particle-model explanation.**

Draw a line from each item on the left to its match on the right.

Every sip of tea is sweet ·	· salt particles are in the water
Sealed bottle weighs the same ·	· sugar particles spread evenly
Salt water tastes salty ·	· the powder is still inside
Sugar vanishes from sight ·	· particles are too small to see

7. **The best way to explain why dissolved matter is not gone is to point to the...**

One idea from today.

- (A) size of the spoon
- (B) time of day
- (C) color of the glass
- (D) particles and the weight and taste evidence

Week 2 Mastery: Dissolving and the Particle Model

Matter and Its Particles — Demonstrate mastery that dissolved matter is still present, shown by taste and weight evidence.

LEARN

This week you learned that dissolving is the particle model in action: dissolved matter does not disappear, and taste and weight prove it is still there. Today you prove it. The last question is a TRANSFER item about a sealed bottle.

Before the check, remember:
- dissolving breaks a material into PARTICLES that spread through the water;
- dissolved matter is still there, not gone;
- TASTE shows it (sweet or salty everywhere);
- WEIGHT shows it (the mixture weighs the water plus the material).

You finished Week 2. You can now:

- explain that dissolved matter spreads into particles and is still there;
- use taste and weight as evidence;
- correct the 'it is just gone' confusion. Next week: you learn that the total weight stays the same through changes - conservation. to finish Week 2.

WEEK 2 MASTERY CHECK

1. **When sugar dissolves in water until you cannot see it, the sugar is...**
   - (A) turned into water
   - (B) sunk to the bottom
   - (C) completely destroyed by the water it was stirred into
   - (D) still there, spread out as tiny particles

2. **How can you tell dissolved salt is still in the water?**
   - (A) the water floats up toward the top of the glass
   - (B) it tastes salty and weighs more
   - (C) the water turns a deep and cloudy shade of red
   - (D) the water becomes much colder to the touch

3. **You dissolve 30 g of sugar into 200 g of water. The sweet water weighs...**
   - (A) 200 g
   - (B) 170 g
   - (C) 230 g
   - (D) 30 g

4. **Which material does NOT dissolve in water?**

   - (A) powdered drink mix
   - (B) beach sand
   - (C) white sugar
   - (D) table salt

5. **Iced tea tastes sweet in every sip because the sugar particles...**

   - (A) all sank straight to the very bottom of the glass
   - (B) left the glass
   - (C) turned into ice
   - (D) spread evenly through the tea

6. **A friend says dissolved sugar is just gone. The best correction is that the sugar...**

   - (A) really did completely disappear from the cup forever
   - (B) floated up and out of the open glass
   - (C) broke into particles and still weighs the same
   - (D) turned all the way into plain water

7. **TRANSFER: You weigh a sealed bottle of water, shake in drink powder until it vanishes, then weigh it again. Compared to before, the bottle now weighs...**

   - (A) much less, because the powder was destroyed
   - (B) the same, because nothing left the bottle
   - (C) far more, because dissolving adds brand-new weight
   - (D) nothing, because it all dissolved away

Weight Is Not Lost

Matter and Its Particles — Recognize that the total weight of matter stays the same when materials are mixed or change.

LEARN

You already know dissolved matter is still there. This week you learn a bigger rule that goes with it: when matter changes, its total WEIGHT stays the same. Nothing is really lost - it just moves or changes form.

When you mix or change materials, the total weight does not go up or down. This rule is called CONSERVATION OF WEIGHT. Mix 50 grams of one powder with 10 grams of another: the mixture weighs 60 grams - exactly the two parts added together. Freeze 100 grams of water and the ice still weighs 100 grams. Why? The matter is still all there. Its particles did not vanish, so the weight cannot vanish either.

Today you met conservation of weight:

- when matter is mixed or changed, the total weight stays the same;
- it works because the particles are still all there. Tomorrow you see why this is true even when matter changes form. to finish the day.

1. You mix 50 g of one powder with 10 g of another. The mixture weighs...

Add the parts.

- (A) 40 g
- (B) 50 g
- (C) 60 g
- (D) 10 g

2. You freeze 100 g of water into ice. The ice weighs...

Same matter, different form.

- (A) 100 g, the same as the water
- (B) 0 g
- (C) 200 g
- (D) 50 g

3. Name the rule.

The total weight stays the same.

When matter is mixed or changed, the total weight stays the same. This rule is called conservation of ________ .

word bank: weight · color · heat · sound

4. When you mix two powders, does the total weight stay the same as the two parts added together?

Circle one: **YES** / **NO**

5. **Why does the total weight stay the same when matter changes?**

Think about the particles.

- (A) weight is made of luck
- (B) the particles are still all there
- (C) new weight appears each time
- (D) the scale always lies

6. **Match each change to the total weight.**

Draw a line from each item on the left to its match on the right.

Mix 50 g and 10 g of powder	the total stays the same
Freeze 100 g of water	100 g of ice
Dissolve 20 g sugar in 200 g water	220 g
Conservation of weight	60 g

7. **Conservation of weight means that when matter changes, the total weight...**

One idea from today.

- (A) drops to zero
- (B) stays the same
- (C) always doubles
- (D) disappears

Sealed Up, Same Weight

Matter and Its Particles — Explain that weight is conserved even when matter changes form, using sealed and open containers.

LEARN

Weight stays the same when you mix powders. But what about bigger changes - ice melting, or fizzing bubbles? Today you see that weight is conserved even then, as long as nothing escapes.

When matter changes form, the particles are still all there - so the total weight does not change, IF nothing leaves the container. Melt 100 g of ice in a sealed jar: the water still weighs 100 g. Mix baking soda and vinegar in a SEALED bottle: it fizzes into gas, but the sealed bottle weighs exactly the same, because the gas is trapped inside. If the bottle is OPEN, the gas escapes into the air. The scale reads less - but the matter was not destroyed. It just left as gas you cannot see.

Today you saw conservation through changes of form:

- sealed up, the weight stays exactly the same;
- in the open, escaping gas makes the scale read less - but the matter is not destroyed. Tomorrow you practice predicting the weight before and after a change. to finish the day.

1. You melt 100 g of ice in a sealed jar. The water now weighs...

Did anything leave?

- (A) 100 g
- (B) 150 g
- (C) 50 g
- (D) 0 g

2. Baking soda and vinegar fizz inside a SEALED bottle. Compared to before, the bottle weighs...

Where did the gas go?

- (A) far more than before
- (B) the same, the gas is trapped inside
- (C) nothing at all now
- (D) much less, the fizz destroyed matter

3. The same fizzing happens in an OPEN cup, and the scale reads less. This is because...

Matter is not destroyed.

- (A) gas escaped into the air, but the matter is not destroyed
- (B) weight turned into light
- (C) the scale broke
- (D) the matter was destroyed

4. **Complete the rule.**

When does weight stay the same?

Weight stays the same through a change as long as nothing leaves the ________ .

word bank: container · room · city · planet

5. **Sort each case: does the total weight stay the same, or appear to drop?**

Write each item under the correct heading.

items: ice melting in a sealed jar · fizz in a sealed bottle · mixing two powders in a bowl · fizz in an open cup · a puddle drying in the open air · open soda going flat over hours

WEIGHT STAYS THE SAME	SCALE APPEARS TO DROP

6. **Match each situation to what happened to the matter.**

Draw a line from each item on the left to its match on the right.

Sealed jar of melting ice ·	· same matter, same weight
Sealed fizzing bottle ·	· water left as gas
Open fizzing cup ·	· gas escaped to the air
Drying puddle ·	· gas trapped, weight stays

7. **When a fizzing cup loses weight in the open air, the lost matter...**

Was it destroyed?

- (A) escaped into the air as gas
- (B) never existed
- (C) turned into the cup
- (D) was destroyed forever

Predict the Weight

Matter and Its Particles — Practice predicting the total weight before and after a change, using conservation of weight.

LEARN

A scientist can predict a result before testing it. With conservation of weight, you can predict what a scale will read after a change. Today you practice: add the parts, and decide whether anything escapes.

Before you predict a weight after a change, ask two questions:

1. What are the parts? Add them up - that is the total. 2. Can anything escape? If it is sealed, or nothing turns to gas, the weight stays. If gas escapes into open air, the scale reads less. The matter is never destroyed. The scale only drops when matter leaves the container.

Today you practiced predicting weights:

- add the parts to get the total;
- the scale stays the same unless gas escapes into the open air. Tomorrow you apply conservation to explain a real puzzle. to finish the day.

1. You mix 80 g of sand with 20 g of salt in a bowl. The mixture weighs...

Add the parts; nothing escapes.

- (A) 100 g
- (B) 60 g
- (C) 80 g
- (D) 20 g

2. A sealed jar holds 100 g of water. You freeze it solid. The sealed jar's contents weigh...

Same matter, sealed.

- (A) 0 g
- (B) 100 g, the same
- (C) 120 g
- (D) 50 g

3. Fizzing tablets bubble in an OPEN cup of water. After the fizzing stops, the scale reads...

Did gas escape?

- (A) more than before
- (B) exactly the same
- (C) less, because gas escaped into the air
- (D) zero

4. **Finish the rule for predicting.**

When does the scale drop?

After a change, the scale only reads less when matter ________ the container as gas.

word bank: leaves · enters · fills · freezes

5. **Sort each change: will the scale stay the same, or read less?**

Write each item under the correct heading.

items: salt dissolving in a covered glass · two clays pressed together · ice melting in a sealed bag · wet paint drying on a board · fizz bubbling in an open glass · rubbing alcohol evaporating in the open

SCALE STAYS THE SAME	SCALE READS LESS

6. **Two sealed bottles balance on a scale. You shake one so its contents react and change color. The scale will...**

Sealed - nothing escapes.

- (A) break apart
- (B) still balance evenly
- (C) tip toward the lighter one
- (D) tip toward the heavier one

7. **To predict the weight after mixing two materials with nothing escaping, you...**

One idea from today.

- (A) subtract the smaller part
- (B) double the larger part
- (C) always guess zero
- (D) add the two parts together

The Case of the Missing Weight

Matter and Its Particles — Apply conservation of weight to explain real changes where the scale seems to drop.

LEARN

A log burns down to a small pile of ash that weighs far less than the log did. Did weight just disappear? Today you use conservation of weight to solve puzzles like this - where the scale seems to drop but no matter is truly lost.

Conservation of weight says matter is never destroyed. So when a scale reads less, ask: WHERE did the matter go? When a log burns, it turns into ash PLUS gases and smoke that float away into the air. The ash alone is light, but ash + escaped gases together weigh the same as the original log and the air it used. The rule for explaining: if the scale dropped, matter LEFT as gas. It did not vanish.

Today you solved the missing-weight mystery:

- matter is never destroyed;
- when a scale drops, the matter LEFT, usually as gas into the air;
- sealed up, the weight always stays the same. Tomorrow you prove the whole week in the Week 3 mastery check. to finish the day.

1. A log burns to a small pile of ash that weighs much less. The best explanation is...

Where did the rest go?

- (A) the missing weight was destroyed
- (B) ash is heavier than it looks
- (C) the fire created new ash
- (D) gases and smoke floated away into the air

2. If you could burn that log inside a perfectly SEALED box and weigh the whole box, it would weigh...

Nothing can escape a sealed box.

- (A) nothing at all
- (B) much less than before
- (C) the same as before, gases trapped inside
- (D) twice as much

3. Sort each statement: good conservation explanation, or not?

Write each item under the correct heading.

items: the puddle's water left as gas into the air · the fizz carried matter off as escaping gas · sealed, so the trapped gas keeps the weight the same · the weight was simply destroyed by the fire · the matter vanished into nothing at all · the scale made the weight disappear

GOOD EXPLANATION	NOT A GOOD EXPLANATION

4. **Finish the explanation.**

If the scale dropped, where did matter go?

When a scale reads less after a change in the open air, the missing matter left as ________ .

word bank: gas · light · sound · heat

5. **A wet towel weighs less after drying in the sun. Using conservation, the water...**

It is not destroyed.

- (A) became sunlight
- (B) turned into the towel
- (C) was destroyed by the sun
- (D) moved into the air as gas and drifted away

6. **Match each puzzle to where the matter went.**

Draw a line from each item on the left to its match on the right.

Log burns to light ash ·	· gases and smoke left into the air
Wet towel dries ·	· gases trapped, same weight
Open fizz settles down ·	· water left as gas
Sealed box of burned log ·	· gas escaped to the air

7. **When a scale drops after a change, a scientist concludes the matter...**

One idea from today.

- (A) left the container, often as gas
- (B) was destroyed
- (C) became weightless
- (D) never existed

Week 3 Mastery: Conservation of Weight

Matter and Its Particles — Demonstrate mastery that the total weight of matter stays the same through changes, and that a dropping scale means matter left.

LEARN

This week you learned conservation of weight: when matter changes, the total weight stays the same, and a scale only drops when matter leaves as gas. Today you prove it. The last question is a TRANSFER item about a sealed bottle that changes inside.

Before the check, remember:
- mixing parts: add them up (50 g + 10 g = 60 g);
- changing form (melting, freezing) does not change the total weight;
- sealed up, the weight always stays the same;
- if the scale drops in the open, matter left as gas - it was not destroyed.

You finished Week 3. You can now:

- add parts to find a total weight;
- explain that changing form keeps the weight the same;
- know a dropping scale means matter left as gas, not that it was destroyed. Next week: you tell materials apart by their PROPERTIES. to finish Week 3.

WEEK 3 MASTERY CHECK

1. Conservation of weight means that when matter is mixed or changed, the total weight...

- (A) drops down to zero
- (B) stays the same
- (C) slowly disappears over a long time
- (D) always doubles by itself each time

2. You mix 40 g of one powder with 60 g of another in a bowl. The mixture weighs...

- (A) 100 g
- (B) 40 g
- (C) 60 g
- (D) 20 g

3. You freeze 100 g of water solid inside a sealed jar. It now weighs...

- (A) 0 g, because it became a solid
- (B) 50 g, because freezing removes some of it
- (C) 100 g, the same
- (D) 200 g, because ice is heavier

4. **Fizzing tablets bubble in an open cup and the scale reads less. This is because...**

   (A) the matter was completely destroyed by the fizz
   (B) gas escaped into the air
   (C) the scale stopped working
   (D) weight turned into light

5. **A log burns down to a small, light pile of ash. The best explanation is that...**

   (A) gases and smoke floated away into the air
   (B) the missing weight was destroyed by the hot flames
   (C) the fire made brand-new ash from nothing
   (D) ash is secretly much heavier than it looks

6. **Two materials react inside a SEALED bottle and change color. The bottle's weight...**

   (A) drops down by quite a lot
   (B) stays exactly the same
   (C) falls to zero
   (D) grows much larger

7. **TRANSFER: A sealed bottle of liquids weighs 250 g. You shake it; the liquids react and turn cloudy. The sealed bottle now weighs...**

   (A) 500 g, reacting adds new weight
   (B) less than 250 g, the reaction used up matter
   (C) 250 g, nothing left the bottle
   (D) 0 g, it all reacted away

MINISTRIES FREE ACADEMY

Answer Key

Grade 5 Science · Quarter 1 Practice · Weeks 1–3

Week 1 · Day 1 — How Scientists Study Matter

1. matter
2. A (tiny particles too small to see)
3. D (a piece of matter too small to see)
4. A (facts that show an idea is true)
5. particles
6. Matter → anything made of particles; Particle → a piece too small to see; Observe → to watch closely; Evidence → facts that show an idea is true
7. C (because evidence supports it)
8. B (evidence)

Week 1 · Day 2 — Particles on the Move

1. C (always moving)
2. B (moving particles spread through the air to your nose)
3. D (diffusion)
4. space
5. 1) Smell particles leave the warm bread; 2) The particles move out through the air; 3) They spread across the room; 4) Some particles reach your nose
6. Diffusion → particles spreading out on their own; Particle → a tiny piece of matter; Evidence → facts that show an idea is true; Space → the gap between particles
7. B (food coloring spreads through still water)
8. A (moving, with space between them)

Week 1 · Day 3 — Spotting Particle Evidence

1. D (perfume spreads across a still room)
2. food coloring spreads through still water → Evidence of moving particles; the smell of soup fills the kitchen → Evidence of moving particles; tea slowly colors a cup of hot water → Evidence of moving particles; a stone rests on the table → Not evidence; a shut door stays in its frame → Not evidence; a brick keeps its shape → Not evidence
3. B (nothing is spreading out on its own)
4. diffusion
5. 1) A drop of coloring lands in still water; 2) Its moving particles begin to spread; 3) The color reaches farther through the water; 4) The whole glass turns one even color
6. C (the sugar broke into particles that spread through the water)
7. A smell drifts across the house → particles move through the air; Coloring spreads in still water → particles spread on their own; Sugar sweetens a whole glass → particles spread through the water; A rock sits unmoved → not evidence of movement
8. A (spreads out on its own)

Week 1 · Day 4 — Explaining the World with Particles

1. C (water particles moved into the air and drifted away)
2. B (there is space between air particles, so they can be pushed closer)
3. particles
4. Yes
5. the smell spread as particles moved through the air → Good explanation; the puddle dried as water particles left into the air → Good explanation; air squeezed smaller because of space between particles → Good explanation; the water just disappeared by magic → Not a good explanation; the smell teleported across the house → Not a good explanation; the sugar was destroyed when it vanished → Not a good explanation
6. B (moving particles spread through the air until some reached my nose)
7. A puddle dries up → water particles move into the air; A balloon squeezes smaller → there is space between particles; A smell fills the house → particles move through the air; Sugar sweetens all the tea → particles spread through the water
8. C (particles are doing)

Week 1 · Day 5 — Week 1 Mastery: The Particle Model

1. A (tiny particles too small to see)
2. B (always moving, with space between them)
3. A (moving particles spread through the air to you)
4. D (diffusion)
5. B (there is space between the air particles)
6. C (a stone resting still on the table)
7. B (the sugar broke into particles that spread through the water)

Week 2 · Day 1 — Where Does the Sugar Go?

1. B (broken into particles spread through the water)
2. A (the water tastes sweet everywhere)
3. dissolved
4. Yes
5. 1) A spoon of sugar drops into the water; 2) The sugar breaks into tiny particles; 3) The particles spread out through the water; 4) Every sip of the water tastes sweet
6. Dissolve → break into particles and spread through a liquid; Sweet taste → evidence the sugar is still there; Particle → a piece too small to see; Spread out → move evenly through the water
7. D (breaks into particles that spread out)

Week 2 · Day 2 — The Weight Tells the Truth

1. A (220 g)
2. C (the sugar particles are still in the glass)
3. weight
4. C (the sweet taste and the added weight)
5. Sweet taste everywhere → sugar particles spread through the water; Scale reads 220 g → the sugar still has weight; Cannot see the sugar → the particles are too small to see; Particle model → dissolved matter is still there
6. D (is still in the water)

Week 2 · Day 3 — Dissolve or Not?

1. table sugar → Dissolves; table salt → Dissolves; powdered drink mix → Dissolves; beach sand → Does not dissolve; cooking oil → Does not dissolve; a small pebble → Does not dissolve
2. D (taste salty and weigh more than the water alone)
3. C (160 g)
4. weight
5. 1) Weigh the water, then stir in the sugar; 2) Watch the sugar disappear from sight; 3) Notice the water tastes sweet and weighs more; 4) Conclude the sugar is still there as particles
6. D (sand stays in visible grains instead of spreading into particles)
7. A (tastes of it and weighs more)

Week 2 · Day 4 — Explaining the Disappearing Act

1. A (it broke into particles that spread through the water and still weighs the same)
2. D (stays the same, powder and all)
3. the salt broke into particles spread through the water → Good explanation; the water still weighs more, so the sugar is there → Good explanation; it tastes sweet everywhere, so the particles spread → Good explanation; the sugar was destroyed by the water → Not a good explanation; the sugar simply vanished into nothing → Not a good explanation; the water magically ate the salt → Not a good explanation
4. particles
5. D (the sugar particles spread evenly through all the tea)
6. Every sip of tea is sweet → sugar particles spread evenly; Sealed bottle weighs the same → the powder is still inside; Salt water tastes salty → salt particles are in the water; Sugar vanishes from sight → particles are too small to see
7. D (particles and the weight and taste evidence)

Week 2 · Day 5 — Week 2 Mastery: Dissolving and the Particle Model

1. D (still there, spread out as tiny particles)
2. B (it tastes salty and weighs more)
3. C (230 g)
4. B (beach sand)
5. D (spread evenly through the tea)
6. C (broke into particles and still weighs the same)
7. B (the same, because nothing left the bottle)

Week 3 · Day 1 — Weight Is Not Lost

1. C (60 g)
2. A (100 g, the same as the water)
3. weight
4. Yes
5. B (the particles are still all there)
6. Mix 50 g and 10 g of powder → 60 g; Freeze 100 g of water → 100 g of ice; Dissolve 20 g sugar in 200 g water → 220 g; Conservation of weight → the total stays the same
7. B (stays the same)

Week 3 · Day 2 — Sealed Up, Same Weight

1. A (100 g)
2. B (the same, the gas is trapped inside)
3. A (gas escaped into the air, but the matter is not destroyed)
4. container
5. ice melting in a sealed jar → Weight stays the same; fizz in a sealed bottle → Weight stays the same; mixing two powders in a bowl → Weight stays the same; fizz in an open cup → Scale appears to drop; a puddle drying in the open air → Scale appears to drop; open soda going flat over hours → Scale appears to drop
6. Sealed jar of melting ice → same matter, same weight; Sealed fizzing bottle → gas trapped, weight stays; Open fizzing cup → gas escaped to the air; Drying puddle → water left as gas
7. A (escaped into the air as gas)

Week 3 · Day 3 — Predict the Weight

1. A (100 g)
2. B (100 g, the same)
3. C (less, because gas escaped into the air)
4. leaves
5. salt dissolving in a covered glass → Scale stays the same; two clays pressed together → Scale stays the same; ice melting in a sealed bag → Scale stays the same; wet paint drying on a board → Scale reads less; fizz bubbling in an open glass → Scale reads less; rubbing alcohol evaporating in the open → Scale reads less
6. B (still balance evenly)
7. D (add the two parts together)

Week 3 · Day 4 — The Case of the Missing Weight

1. D (gases and smoke floated away into the air)
2. C (the same as before, gases trapped inside)
3. the puddle's water left as gas into the air → Good explanation; the fizz carried matter off as escaping gas → Good explanation; sealed, so the trapped gas keeps the weight the same → Good explanation; the weight was simply destroyed by the fire → Not a good explanation; the matter vanished into nothing at all → Not a good explanation; the scale made the weight disappear → Not a good explanation
4. gas
5. D (moved into the air as gas and drifted away)
6. Log burns to light ash → gases and smoke left into the air; Wet towel dries → water left as gas; Open fizz settles down → gas escaped to the air; Sealed box of burned log → gases trapped, same weight
7. A (left the container, often as gas)

Week 3 · Day 5 — Week 3 Mastery: Conservation of Weight

1. B (stays the same)
2. A (100 g)
3. C (100 g, the same)
4. B (gas escaped into the air)
5. A (gases and smoke floated away into the air)
6. B (stays exactly the same)
7. C (250 g, nothing left the bottle)