Where did the sugar go?

Ages 5–7 with a grown-up · 5–10 minutes · Explain dissolving

https://kiddos.ai/explorations/learning-with-gina-and-ollie/where-did-the-sugar-go

Wonder together

Will we still see the grains? Gina has a little sugar. What will happen in water?

Materials

A clear unbreakable cup, half a cup of cool water, one level teaspoon of plain white granulated sugar, a spoon and a tray.

Adult setup — read before trying

An adult measures named ingredients and supervises gentle stirring on a level tray. No tasting or unknown powders, heat or extra liquids. Keep materials away from mouths; wipe spills, empty the cup and wash equipment/hands afterward.

Try together

1. Pour half a cup of cool water into a clear unbreakable cup. Keep it on a level tray.
2. Add one level teaspoon of ordinary white sugar. Look for the grains.
3. Stir gently. Pause and look. Keep stirring until the grains are no longer visible.

Keep the comparison clear

Keep fixed: Same cup, amount of water and water temperature.

What changes: Sugar is added and mixed; visible grains become harder to see.

Look for: Look for grains before and after gentle mixing, including at the bottom.

Explain with care

Sugar molecules separate from one another and mix through the water. They remain sugar molecules, too small to see individually.

Sugar did not turn into water, melt or evaporate. The diagram is a model; a clear cup alone cannot prove what is present. Stirring helps but is not required for dissolving.

Talk about it

Will we still see the grains? Gina has a little sugar. What will happen in water?

Answer cue: Welcome a guess before reading the result. No correct prediction is required.

What can you see at the bottom after mixing?

Answer cue: The visible grains can disappear from view; coarse grains may need more time.

Have the sugar molecules shrunk or changed into water?

Answer cue: No. They remain sugar, spread through the water.

A parent move: Ask for observations first, then label the invisible-particle explanation as a model.

Start simply: Use only the small measured amount; pause, look and stir gently again if grains remain.

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Explore further: In a fresh matching setup, watch the same small amount before stirring; it can dissolve without stirring too.

Return to it: Explain to someone why “I cannot see it” is different from “it is gone.”

In the classroom

Flexible 20-minute small-group session; pause or shorten as needed.

3 min · Wonder

Read pages 1–2. Invite a prediction with words, pointing or a sketch; keep the result hidden.

4 min · Notice the story

Read pages 3–5. What can you see at the bottom after mixing? Separate the observation from the explanation.

9 min · Try together

Use the materials and adult setup on this guide, then follow the activity steps in this guide. Look for grains before and after gentle mixing, including at the bottom.

4 min · Make meaning

Have the sugar molecules shrunk or changed into water? Invite a drawing, a description or an adult-written note. Ask for observations first, then label the invisible-particle explanation as a model.

Understanding check

Have the sugar molecules shrunk or changed into water?

Answer guidance: No. They remain sugar, spread through the water.

Participation choices: Use only the small measured amount; pause, look and stir gently again if grains remain. Accept pointing, words, a drawing or adult-directed action. Use the story alone if the activity is unsuitable.

Words to explore

dissolve — Mix into water as particles too small to see.

particle — A tiny part of a material; here, a sugar molecule.

Full adult notes and honest limits

Prepare a small observation. Put a clear unbreakable cup on a level tray. An adult measures about half a cup (120 mL) of cool or room-temperature water and one level teaspoon of ordinary white granulated table sugar. Use a small spoon that reaches the bottom. The illustration uses a wooden spoon; any suitable household teaspoon works. Use only the named ingredients. The adult stays beside the child and can do all pouring or stirring when needed. This is an observation activity, with no tasting. Wipe spills, empty the cup and wash the equipment and hands afterward.

Invite a prediction before adding sugar: will the grains stay visible? Add the sugar, look at the bottom, then stir gently. Pause to look and stir again if grains remain. Do not promise a fixed number of seconds. Compare the same cup before and after, keeping the water amount and temperature the same. Ask the child to describe what they can actually see before offering the explanation. The illustrated first instant shows grains; small grains may dissolve before the child can study them closely.

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Explain the invisible part. Sugar grains contain many tiny sugar molecules. Water allows those molecules to separate from one another and mix through the water. They remain sugar molecules; the molecule itself does not shrink or break into smaller atoms. The page-five symbols are a teaching model, not something eyes or an ordinary magnifying glass can see. Their count illustrates that sugar remains, not a measured count of the cup. Water molecules are omitted for clarity. A clear-looking cup alone does not prove that sugar is absent or present; we know what we added and use the scientific model to explain the change.

If grains remain, keep the test small and patient. Check that only one level teaspoon went into about half a cup of water, stir gently near the bottom and allow more time. Coarse crystals can take longer. Avoid adding more sugar, heat, other liquids or unknown powders. If the water becomes cloudy because the material was not plain granulated sugar, start fresh with the named ingredients. We are observing dissolving, not comparing brands or testing how much sugar water can hold.

Make the learning usable. A child may stir with support, point to the cup, draw before and after, or direct the adult. Accept every initial guess calmly. Ask “What changed?” (the visible grains) and “What stayed?” (the same cup and the sugar in the water). For a small group, use one adult-led demonstration and invite observations in turn. For another observation, use fresh water and the same small amount of sugar; let a spoonful sit without stirring first. Sugar can dissolve without stirring too, though mixing helps it happen faster. Do not present stirring as a magical switch.

Continue the story only after the lesson. Where Did My Water Go? is related reading about a different change: water moving through the water cycle. This sugar activity is editorial and is not in that book. Dissolving sugar is not melting it or turning it into water vapor. The shared question is “What happened to something we can no longer see?” This package is designed for ages 5–7 with an adult; it is not a tested learning intervention, and no live family experiment was performed.

Related reading

Where Did My Water Go? asks about water’s journey. Dissolving sugar is different from water evaporating.

Scientific sources

acs-sugar-dissolving — https://www.acs.org/middleschoolchemistry/lessonplans/chapter5/lesson4.html

rsc-mass-and-dissolving — https://edu.rsc.org/solutions/mass-and-dissolving-chemical-misconceptions-ii-11-14-years/1084.article

acs-using-dissolving — https://www.acs.org/education/resources/k-8/inquiryinaction/fifth-grade/substances-have-characteristic-properties/lesson-2-1--using-dissolving-to-identify-substances.html

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