

Physical Changes & Crystal Growth

Crystal Growth Conservatory with Fizzling

Learning target

Explain examples where appearance changes without a new substance forming.



Before you begin

Use the reference page and discussion prompts on their own, or open the optional browser adventure. No earlier lesson or physical kit is required.

For online play: use an internet-connected current browser with local storage enabled. Read the three-part Gemling briefing, answer the quick check, and apply the evidence at three checkpoints. Retry feedback supports review; results are not a secure test or gradebook.

Use for teacher-led review, science centers or partner practice. Independent readers may need support with the vocabulary below. The design target is grades 3-5; choose support based on the learner.

Vocabulary and concepts to discuss

Changing state; dissolving; crystallization; rearranged form

Open Crystal Growth Conservatory - direct lesson link

Scan the QR code or use the clickable link. This guide is usable offline; the adventure runs on an external educational website.



Physical Changes & Crystal Growth - key ideas

1. The first clues

Dissolving and changes of state can be physical changes. Crystals may grow from a solution as dissolved material forms an ordered solid.

2. How the clues connect

Crystal growth does not automatically prove a new substance formed. Compare the material's identity before and after.

3. Our evidence record

Our record dissolves salt in water, then removes water and recovers salt crystals. The salt remains salt; its form and distribution changed.

Keep the science accurate

Crystal growth from a solution can be a physical change; crystals do not automatically prove a reaction.

Apply the evidence

Use a specific observation from this lesson to explain one choice. Point to a clue, then connect that clue to a scientific idea.

Curriculum reference: <https://www.nextgenscience.org/dci-arrangement/5-ps1-matter-and-its-interactions>

Talk through the evidence

1. Which material is recovered in our record?

Expected answer: Salt

Reasoning: Dissolving and changes of state can be physical changes. Crystals may grow from a solution as dissolved material forms an ordered solid.

2. Does crystal growth always mean chemical reaction?

Expected answer: No

Reasoning: Crystal growth does not automatically prove a new substance formed. Compare the material's identity before and after.

3. Which sequence fits?

Expected answer: Dissolve salt, remove water, recover crystals

Reasoning: Our record dissolves salt in water, then removes water and recovers salt crystals. The salt remains salt; its form and distribution changed.

4. What should decide classification?

Expected answer: Evidence about substance identity

Reasoning: Crystal growth does not automatically prove a new substance formed. Compare the material's identity before and after.

Guide the discussion

Ask learners to name the evidence that supports their answer. If an answer differs, revisit the matching key idea on page 2 and invite a revised explanation.

Online rewards: this lesson grants one fixed digital Expedition Discovery. Five saved digital Gemling friends become available only after all six distinct subject lessons are complete, in any order. Digital rewards do not establish physical ownership.