

5th Grade - Lesson 1.3

Dissolving and Back Again

NGSS Alignment

Performance Expectations

5-PS1-1: Develop a model to describe that matter is made of particles too small to be seen.

Disciplinary Core Ideas

PS1.A: Structure and Properties of Matter

- Matter of any type can be subdivided into particles that are too small to see but even then the matter still exists and can be detected by other means. (5-PS1-1)

Students dissolve salt in water and allow the water to evaporate and the salt to recrystallize. An explanation is developed that water molecules interact with the salt and make it dissolve and that as water molecules evaporate, the salt ions come back together and form crystals again. These phenomena, observations, and explanations help students develop an understanding that matter is made from particles that are too small to be seen.

Science and Engineering Practices

Developing and Using Models

- Develop a model to describe phenomena. (5-PS1-1)

After seeing the salt dissolve, a molecular animation is shown to help students understand that tiny invisible particles are interacting in the dissolving, evaporation, and recrystallization process.

Crosscutting Concepts

Scale, Proportion, and Quantity

- Natural objects exist from the very small to the immensely large. (5-PS1-1)

Students use molecular-level models to explain how water dissolves the salt, how the water evaporates, and how the salt reforms into crystals they can see. Students realize that their macroscopic observations are the result of processes at a tiny invisible scale.

Cause and Effect

- Cause and effect relationships are routinely identified, tested, and used to explain change.

Students develop an understanding that the interactions of water molecules with the ions in salt is the cause of the salt dissolving. They also see that evaporation of the water molecules causes the salt to become more concentrated and bond together to recrystallize.