

Rocks and Minerals Concept Storyline

Unifying Concept

Earth materials have distinctive physical and chemical properties that make them useful for a wide variety of purposes.

Unit Concept

Each mineral has a unique chemistry. Rocks are aggregates of minerals and are constantly changing to form new rocks.

Grade-Level Concept

Rocks and minerals have unique properties that may be identified by observation and testing and that help determine how these earth materials are used.

Subconcept 1

Rocks are formed by a variety of processes and are always changing.

Lesson 1: Pre-Unit Assessment: Sharing What We Know about Rocks
Students explore three rocks and discuss what they know and would like to know about rocks.

Lesson 2: Observing Rocks: How Are They the Same and Different?
Students explore 12 rocks and sort them on the basis of similarities and differences.

Lesson 3: Learning More about Rocks
Students learn about how rocks are formed and sort the rocks into three classes.

Subconcept 2

Rocks are aggregates of minerals.

Lesson 4: Discovering Minerals
Students examine three minerals and explore the concept that rocks contain minerals.

Subconcept 3

Minerals have distinctive properties that may be identified by testing.

Lesson 5: Sharing What We Know about Minerals
Students explore the physical properties of 12 unlabeled minerals.

Lesson 6: Observing Minerals: How Are They the Same and Different?
Students focus on the properties of texture and smell.

Lesson 7: Describing the Color of Minerals
Students perform streak tests and explore observable and identifying colors.

Lesson 8: Shining a Light on Minerals
Students use flashlights to examine the opacity of minerals.

Lesson 9: Exploring the Luster of Minerals
Students examine the minerals under bright light.

Lesson 10: Exploring the Hardness of Minerals
Students use scratch tests to sort the minerals on the basis of relative hardness.

Lesson 11: Testing the Minerals with a Magnet
Students test the magnetic properties of the minerals.

Lesson 12: Describing the Shape of Minerals
Students investigate the crystalline shape of the minerals.

Subconcept 4

Every mineral is composed of only one substance, and that substance is the same throughout the mineral.

Lesson 13: Comparing Samples of the Same Mineral
Students compare samples of the same minerals and summarize what they have learned about minerals.

Lesson 14: Identifying the Minerals
Students use the results of their tests and reading to identify the 12 mineral samples by name.

Lesson 15: Exploring New Minerals
Students use their knowledge to identify three "mystery minerals."

Subconcept 5

The properties of rocks and minerals determine how they are used.

Lesson 16: How Are Rocks and Minerals Used?
Students prepare and present reports on the uses of rocks and minerals.

Lesson 17: Post-Unit Assessment: Sharing What We Know about Rocks and Minerals
Students reflect on and discuss what they have learned.