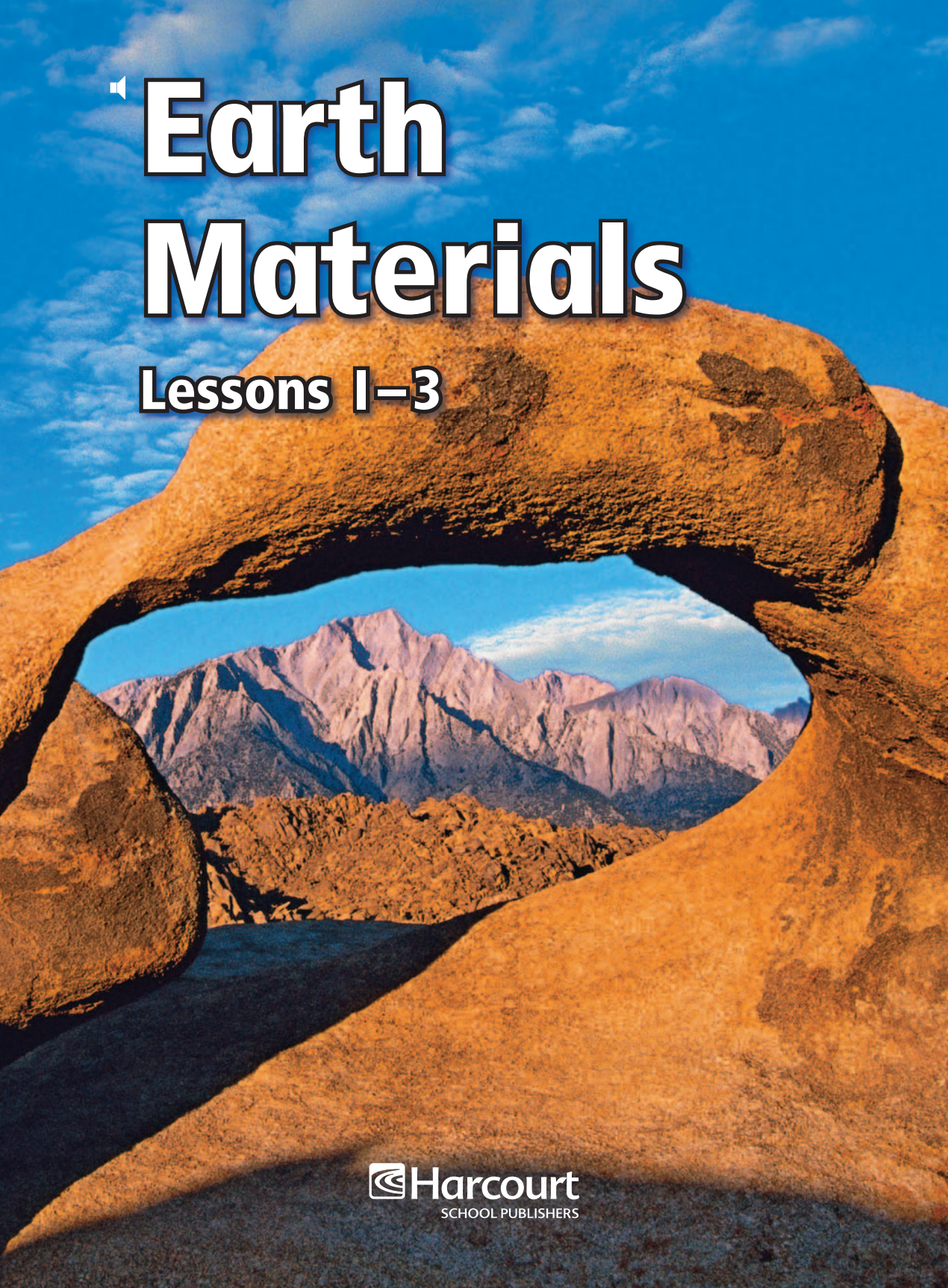




Earth Materials

Lessons 1–3

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Earth Materials

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Rocks and Minerals

-  Mountains are made of rock.
-  Rock is a hard, solid material.
-  Some rocks are very big.
-  Some are tiny.





- ▶ Rock is made up of minerals.
- ▶ Some rocks have only one mineral.
- ▶ Most rocks have two or more minerals.

Comparing Minerals

- Minerals have different properties.
- Minerals are different colors.
- Some minerals are shiny. Some are not.
- Minerals have different textures.
- Some are rough. Some are smooth.

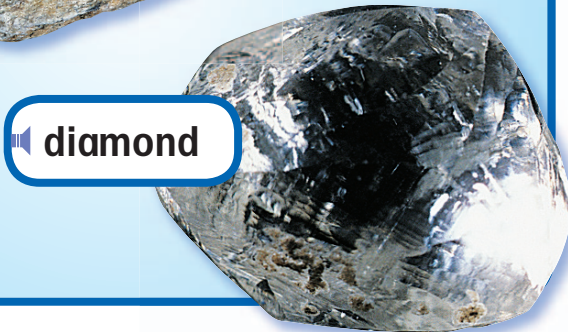
Mineral Color



Mineral Hardness



talc



diamond

- Some minerals are harder than others.
- A harder mineral will scratch a softer one.
- A diamond is the hardest mineral.
- It can scratch talc, the softest mineral.

Wind and Rain Cause Weathering



weathered rock

- Wind breaks rock into pieces.
- Rain also breaks down rock.
- This is weathering.
- Weathering changes all of Earth's rock.

Water Causes Weathering



rock cracked by freezing water

- Water may freeze in the cracks of rock.
- When water freezes, it turns into ice.
- Ice takes up more space than water.
- So, the ice makes the cracks bigger.
- After a while the rock breaks into pieces.

Plants Cause Weathering

rock cracked by roots



- ▶ The roots of some plants are strong.
- ▶ They may push into the cracks in rocks.
- ▶ Little by little they make the cracks bigger.
- ▶ The roots of this tree have cracked the rock.

Things in the Air Cause Weathering

- Water in the air mixes with other things.
- The mixture causes weathering.
- Weathering may change the color of rock.
- It may eat away minerals in the rock.

weathered statue made of rock



Soil



- ▶ Soil is made of bits of rock and other material.
- ▶ Most soils have parts of dead plants in them.
- ▶ The dead plants rot and fall apart.
- ▶ The rotted bits become part of the soil.



- ▶ Parts of dead animals may also be in soil.
- ▶ The plant and animal matter is called humus.
- ▶ Worms mix up soil as they move through it.

🔊 Kinds of Soil

🔊 Clay



- 🔊 • smooth when dry
- 🔊 • sticky when wet
- 🔊 • holds a lot of water

🔊 Silt



- 🔊 • smooth
- 🔊 • feels like powder
- 🔊 • does not hold water well

- 🔊 There are many kinds of soil.
- 🔊 Different soils look different.
- 🔊 Some are light in color. Some are dark.

Humus



-  • soft, crumbly
-  • holds a lot of water

Sand



-  • rough, grainy
-  • does not hold water well

-  Soils also feel different.
-  Some soils are smooth.
-  Some are grainy.

Soil for Growing Things



corn in soil with clay



lettuce in soil with humus

- Soil helps plants get the water they need.
- Some soil holds water better than others.
- Soil with a lot of humus holds water well.



🔊 cotton in silt



🔊 plants in sand

- 🔊 Soil helps plants get the nutrients they need.
- 🔊 Different soils have different nutrients.
- 🔊 Different plants grow well in different soils.

🔊 **Vocabulary**

- 🔊 **freeze, p. 7**
- 🔊 **humus, p. 11**
- 🔊 **mineral, p. 3**
- 🔊 **property, p. 4**
- 🔊 **rock, p. 2**
- 🔊 **rot, p. 11**
- 🔊 **soil, p. 10**
- 🔊 **texture, p. 4**
- 🔊 **water, p. 7**
- 🔊 **weathering, p. 6**

Think About the Reading

-  **1.** What new ideas do you have after reading this book?
-  **2.** How can you learn more about your new ideas?

Hands-On Activity

-  **1.** Collect rocks of different colors and sizes.
-  **2.** Compare and sort the rocks by color. Then sort them by size. Think of another way to sort them.

School-Home Connection

Tell a family member what you have read about rocks and soil. Talk with the family member about the rocks and soil in your area.