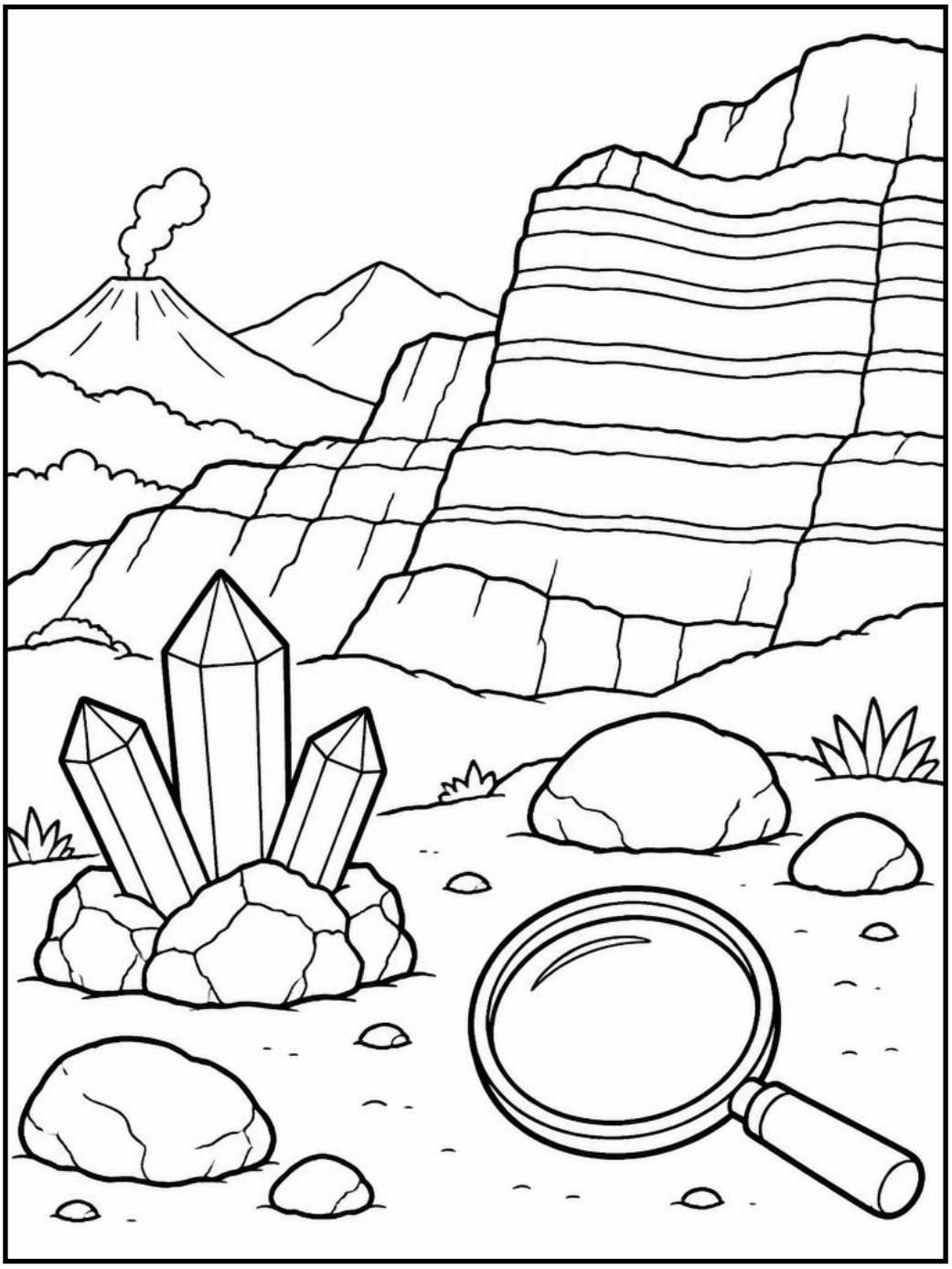
Rocks, Minerals & the Rock Cycle

Learning Pack · Color It. Learn It. Explore It.

Ages 6–10 · Grades 1–4 (approximate) · Earth Science / Geology · 30–75 minutes

Name: _____



Inside: facts · vocabulary · three rock types · rock cycle · rock detective · quiz · answer key · notes

What you will learn

Learning objectives

- ☐ Explain the difference between a rock and a mineral.
- ☐ Name the three main rock types.
- ☐ Describe how igneous rocks form.
- ☐ Describe how sedimentary and metamorphic rocks form.
- ☐ Explain why the rock cycle has many pathways.

Five geology facts

Fact 1: Rocks and minerals

A mineral is a natural solid with its own chemical recipe and its tiny parts arranged in a regular pattern, like quartz. A rock is a natural solid made of one or more minerals or other Earth materials, like granite.

Fact 2: Igneous rocks

Igneous rocks form when molten (melted) rock cools and becomes solid. Molten rock underground is called magma; when it reaches Earth's surface it is called lava. Examples: granite and basalt.

Fact 3: Sedimentary rocks

Many sedimentary rocks form when bits of sand, mud and shells settle in layers, get pressed together and are cemented. Some form in other ways, such as minerals coming out of water. Examples: sandstone and limestone.

Fact 4: Metamorphic rocks

Metamorphic rocks form when existing rocks are changed by heat, pressure and/or hot fluids — without completely melting. Examples: marble and slate.

Fact 5: The rock cycle

Rocks can change from one type into another in different ways. The rock cycle is not one fixed order, and a rock does not have to become all three types.

Sources (checked October 2026)

Facts 1, 2, 4: U.S. Geological Survey, usgs.gov/faqs/what-difference-between-a-rock-and-a-mineral
Facts 2–4: British Geological Survey, bgs.ac.uk/discovering-geology/rocks-and-minerals
Fact 5: British Geological Survey, bgs.ac.uk/discovering-geology/geological-processes

Geology words

Rock	A natural solid made of one or more minerals or other Earth materials.
Mineral	A natural solid with its own chemical recipe and a regular inside pattern, like quartz.
Igneous	Rock that forms when molten rock cools and becomes solid.
Sedimentary	Rock that often forms from bits of sand, mud or shells pressed and cemented together.
Metamorphic	Rock that has been changed by heat and pressure without fully melting.
Magma	Molten (melted) rock below Earth's surface.
Lava	Molten rock that has reached Earth's surface.
Weathering	Breaking down or changing rock where it is, by water, ice, plants or air.
Erosion	Moving broken rock bits from one place to another, by water, wind or ice.

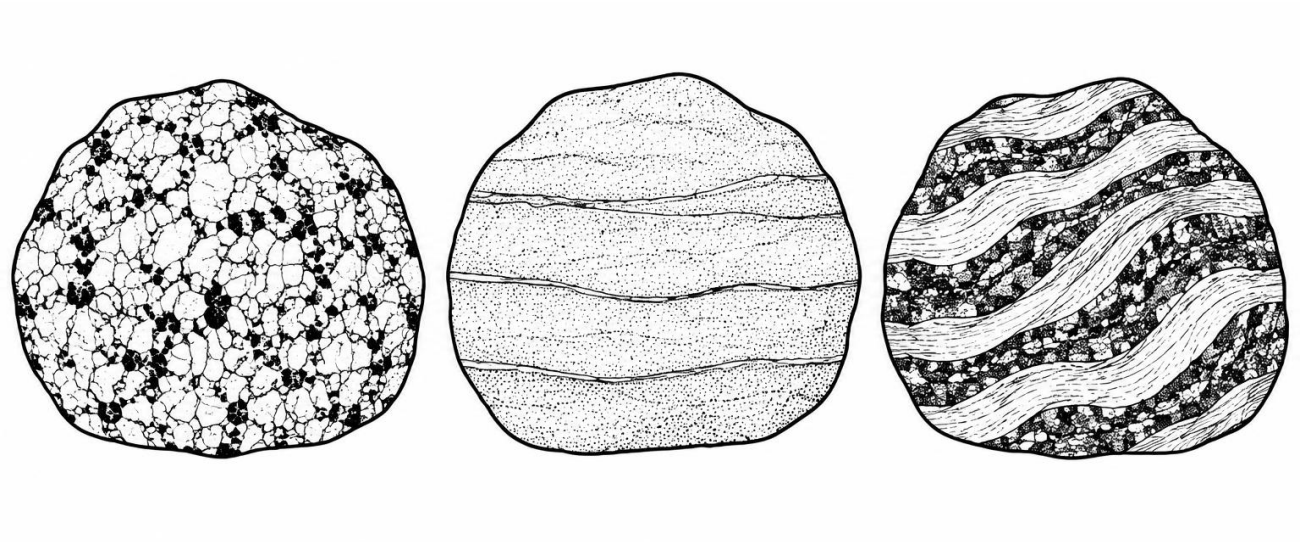
Your turn: write a sentence using two vocabulary words.

Identify the three rock types

Name: _____ Date: _____

Look closely at each rock sample. Write its rock type on the line. Use each word once.

Igneous · Sedimentary · Metamorphic



Rock A
Example: granite
(speckled crystals)

_____

Rock B
Example: sandstone
(sand grains, some layers)

_____

Rock C
Example: gneiss
(bands of minerals)

_____

Which rock type forms when molten rock cools?

_____

These are examples. Not all sedimentary rocks show layers, and not all metamorphic rocks have bands — geologists look at many clues together.

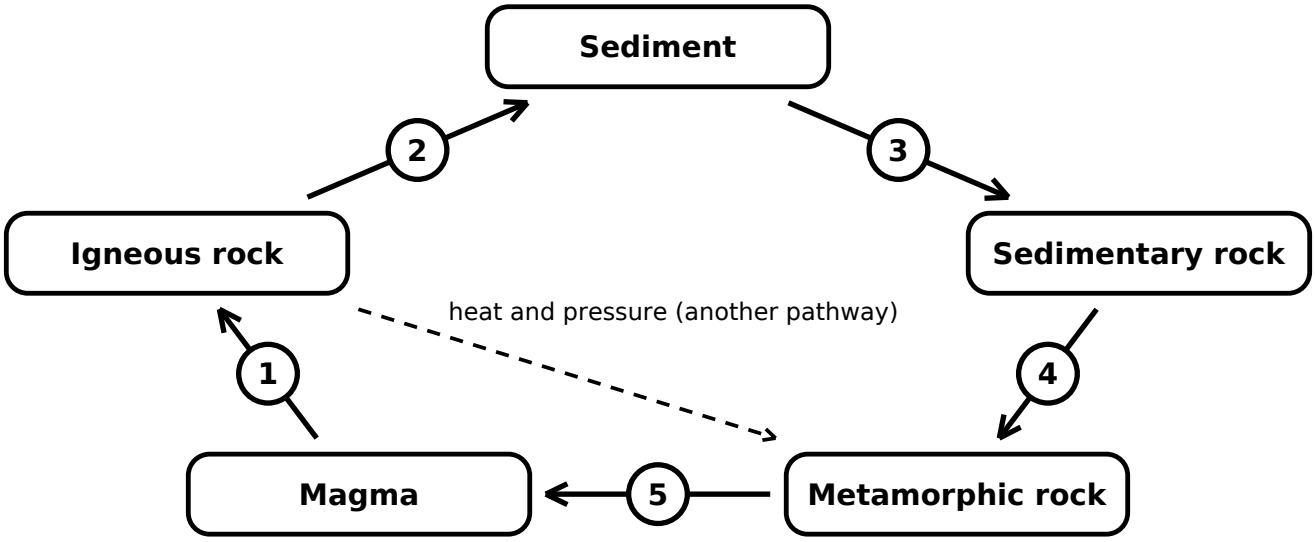
Rock cycle science activities

Name: _____ Date: _____

Activity A: How rocks change

Write the process from the word bank next to each number. Arrows show the direction of change.

cooling and solidification · weathering, erosion and deposition · compaction and cementation
heat and pressure · melting



1. _____ 2. _____

3. _____ 4. _____

5. _____

A simplified set of possible pathways. The dashed arrow shows one more example — rocks can change in other ways too.

Activity B: Rock detective

Look at a real rock, or Rock A, B or C on page 4. Describe it — you don't need to name its type.

Color(s):

_____

Texture (rough, smooth?):

_____

Grain size (big, small?):

_____

Layers or crystals I see:

_____

Draw your rock here

Geology quiz

Name: _____ Date: _____

Fill in the circle next to the best answer.

1. What is the difference between a rock and a mineral?

- ◯ a) A rock is made of one or more minerals or other natural materials
- ◯ b) A mineral is always bigger than a rock
- ◯ c) There is no difference

2. How do igneous rocks form?

- ◯ a) Shells pile up on the sea floor
- ◯ b) Molten rock cools and becomes solid
- ◯ c) Wind blows sand into a pile

3. How can many sedimentary rocks form?

- ◯ a) Lava cools quickly at the surface
- ◯ b) Sediments settle, get pressed together and cemented
- ◯ c) Rocks are melted completely

4. How do metamorphic rocks form?

- ◯ a) Rocks change from heat and pressure without fully melting
- ◯ b) Magma cools on the surface
- ◯ c) Mud dries in the sun for one day

5. Does every rock follow one fixed order through the rock cycle?

- ◯ a) Yes, always igneous, then sedimentary, then metamorphic
- ◯ b) No, rocks can change in many different ways
- ◯ c) Yes, rocks never change

Bonus: What might happen to a rock over millions of years?

Answer key

Identify the three rock types

Rock A (granite) — Igneous. Rock B (sandstone) — Sedimentary. Rock C (gneiss) — Metamorphic.

Molten rock cools to form: igneous rock.

Activity A: How rocks change

1. cooling and solidification (Magma → Igneous rock)
2. weathering, erosion and deposition (Igneous rock → Sediment)
3. compaction and cementation (Sediment → Sedimentary rock)
4. heat and pressure (Sedimentary rock → Metamorphic rock)
5. melting (Metamorphic rock → Magma)

Activity B: Rock detective

Answers will vary. Example for Rock A: white, gray and black; feels rough; medium-sized grains; I can see small crystals.

Quiz

1. a) A rock is made of one or more minerals or other natural materials
2. b) Molten rock cools and becomes solid
3. b) Sediments settle, get pressed together and cemented
4. a) Rocks change from heat and pressure without fully melting
5. b) No, rocks can change in many different ways

Bonus (answers will vary): for example, it could be worn down into sand by weathering and erosion, buried and pressed into sedimentary rock, changed by heat and pressure, or melted into magma. Some changes take much longer than others.

Teacher and parent notes

Who it is for

Ages 6–10 (about grades 1–4). Younger children can do the coloring, vocabulary and rock-type pages with help reading.

Time

30–75 minutes, depending on the activities selected.

Suggested order

1) Read the facts. 2) Vocabulary. 3) Identify the three rock types. 4) Rock cycle activity. 5) Observe a rock sample. 6) Quiz. 7) Color a sheet from the free Rocks & Earth Layers collection.

Hands-on: rock observation lab

Collect three or four everyday rocks (from a garden, a store-bought set, or the pictures on page 4). Children look with a magnifying glass, describe color, texture, grain size and any layers or crystals, then sort the rocks into groups and explain their choices.

Safety

An adult should supervise. Only collect rocks where it is allowed, and never from cliffs, quarries, riverbanks or busy roads. Do not break or hammer rocks, and do not put rocks in the mouth. Wash hands afterward. The whole activity can be done indoors using the pictures.

Discussion questions

How is a mineral different from a rock? Why can't we tell a rock's type from its color alone? What could change a rock? Why does the rock cycle have many pathways?

A note on the science

The rock cycle diagram is simplified. Any rock type can become any other, and some rocks stay the same for a very long time. Real identification uses many clues — color alone is not enough.