Rock Cycle Clues

Follow the changes that make rocks.

6.5.b "Construct an evidence-based explanation of how rocks are classified as metamorphic, igneous, or sedimentary based on their characteristics and the process of the rock cycle."

NAME _____ DATE _____

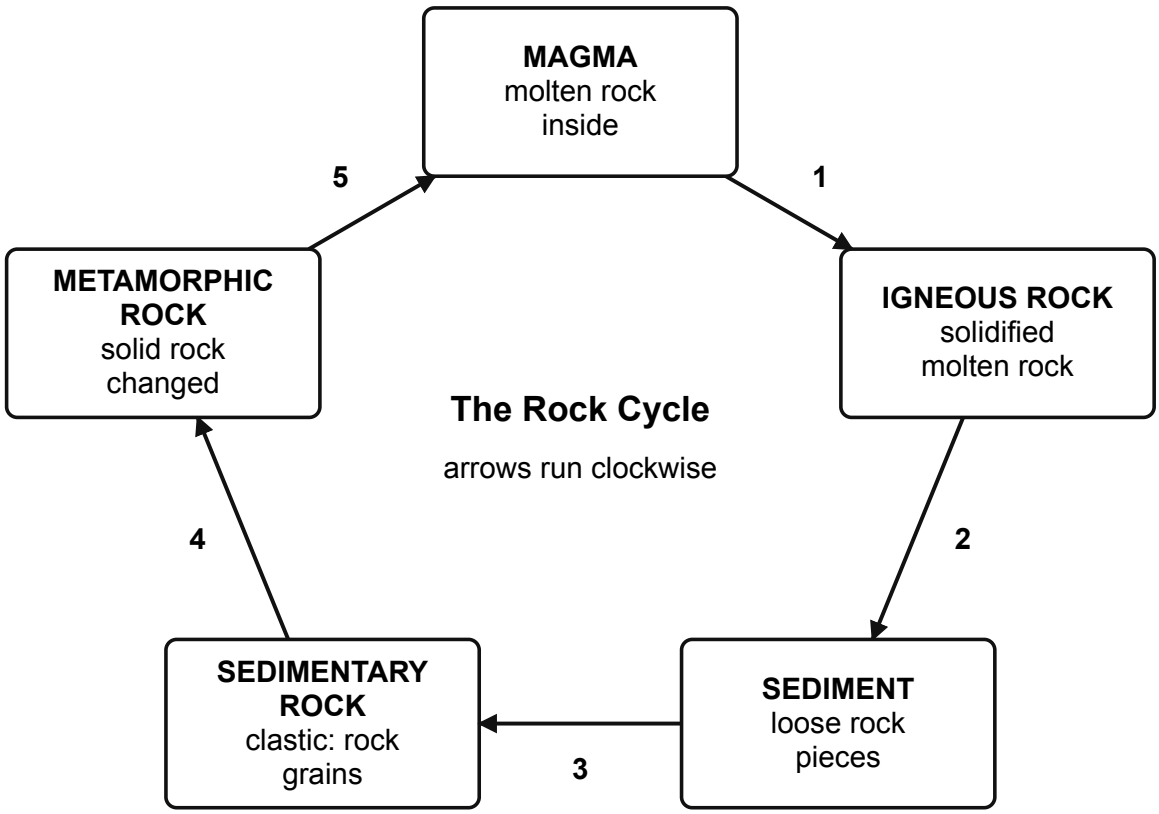
1 LABEL THE MODEL

Word bank below

Write one process from the word bank in each numbered arrow box. Follow the arrows to see how each stage becomes the next.

WORD BANK

- compaction and cementation
- cooling and solidifying
- heat and pressure
- melting
- weathering and erosion



Arrow numbers match the response boxes on the next student section.

Label the arrows

Use the word bank to write the process for each numbered arrow.

Arrow 1	Arrow 2	Arrow 3

Arrow 4	Arrow 5

2 RUN THE MODEL

Use your finished diagram

1. Sample A has cemented sand grains. Classify it and explain how its visible grains and formation process support your answer.

2. Sample B has interlocking crystals and formed when magma cooled. Classify it and connect the evidence to a model arrow.

3. Sample C formed when an existing solid rock was altered by heat and pressure without melting. Classify it and explain why it is not igneous.

3 CHECK IT

Before you turn it in

- [ ] I used each process once.
- [ ] I checked where each arrow points.
- [ ] I used rock clues in my answers.

TEST THE MODEL

What path can a real rock take that this loop does not show?

ANSWER KEY

Rock Cycle Clues

GRADE 6 · 6.5.b

PART 1 · COMPLETED MODEL

ARROW	FROM	TO	PROCESS
1	MAGMA molten rock inside	IGNEOUS ROCK solidified molten rock	cooling and solidifying
2	IGNEOUS ROCK solidified molten rock	SEDIMENT loose rock pieces	weathering and erosion
3	SEDIMENT loose rock pieces	SEDIMENTARY ROCK clastic: rock grains	compaction and cementation
4	SEDIMENTARY ROCK clastic: rock grains	METAMORPHIC ROCK solid rock changed	heat and pressure
5	METAMORPHIC ROCK solid rock changed	MAGMA molten rock inside	melting

PART 2 · RUN THE MODEL

1. **Clastic sedimentary rock: preexisting sand grains were deposited and then cemented, rather than crystallizing together from a melt.** (Sample A has cemented sand grains. Classify it and explain how its visible grains and formation process support your answer.)
2. **Igneous rock: cooling and solidifying magma produces crystals. Both its stated formation and crystalline texture support the classification.** (Sample B has interlocking crystals and formed when magma cooled. Classify it and connect the evidence to a model arrow.)
3. **Metamorphic rock: the original solid rock changed without melting. Igneous rock forms when molten material cools and solidifies.** (Sample C formed when an existing solid rock was altered by heat and pressure without melting. Classify it and explain why it is not igneous.)

TEST THE MODEL (SAMPLE ANSWERS)

- Igneous rock can become metamorphic rock without becoming sedimentary rock first.
- Metamorphic rock can break into sediment instead of melting.

Require a classification plus evidence and process, not a label alone. The loop illustrates a clastic sedimentary pathway; chemical and biological sedimentary rocks form in other ways. Rock texture alone can be ambiguous, so the supplied formation history also matters. Source: National Park Service, rock-type pages.