Rock Story Lab

Test a rock-forming process and use clues to identify rocks.

E.3.7A.1 "Plan and conduct controlled scientific investigations to identify the processes involved in forming the three major types of rock, and investigate common techniques used to identify them."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline how each rock type forms, circle clues that could help you identify a rock, and number the steps in the jar test. These marks will help you connect the test to the rock stories.

Stories in Stone

1. A hike can tell the story of three rocks. When melted rock called lava cools at Earth's surface, it hardens into igneous rock. Pieces of older rocks can be carried by a river. They settle in layers, then press together and become sedimentary rock over a very long time. Deep underground, heat and pressure can change an older rock without melting it. The changed rock is metamorphic.

2. You can model one part of the river story with two clear jars. Put the same amounts of sand, small pebbles, and water in each same-size jar. Shake one jar for five seconds and the other for twenty seconds. Leave both jars still for one minute. Then compare how the grains settled. Shaking time is the only thing you changed, so the test is controlled. The grains do not turn into rock.

3. A rock detective checks more than color. Layers of grains or bits of old shells are clues to sedimentary rock. Holes left by gas in cooling lava can point to igneous rock. Wavy bands may show that an older rock was changed by heat and pressure. Use a hand lens to look closely at grains and holes. A clue helps you decide, but one clue may not tell the whole story.

2 ANSWER WITH EVIDENCE

Use the passage

1. A stone has holes left by gas. Which rock type might it be, and what process made it?

2. A stone has layers of grains and bits of old shells. Which rock type is likely, and what happened to its pieces?

3. Why must both jars have the same amounts of sand, pebbles, and water?

4. A rock has wavy bands, but it did not melt. Which type might it be, and what changed it?

3 YOUR TURN

Your own words

Plan a new test with two cups of damp sand to model pressing sediment. Tell what you will change, what you will keep the same, what you will observe, and which rock type the model helps explain.

Rock Story Lab

PART 1 · READ AND MARK

Underline how each rock type forms, circle clues that could help you identify a rock, and number the steps in the jar test. These marks will help you connect the test to the rock stories. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	A stone has holes left by gas. Which rock type might it be, and what process made it?	**It might be igneous rock. Lava cooled and hardened, leaving holes from gas.**
2	A stone has layers of grains and bits of old shells. Which rock type is likely, and what happened to its pieces?	**It is likely sedimentary rock. Pieces settled in layers and were pressed together over a long time.**
3	Why must both jars have the same amounts of sand, pebbles, and water?	**Keeping those amounts the same makes shaking time the only change, so the test is controlled.**
4	A rock has wavy bands, but it did not melt. Which type might it be, and what changed it?	**It might be metamorphic rock. Heat and pressure changed an older rock without melting it.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I will put the same amount of damp sand in two same-size cups. I will press the sand in one cup once and the sand in the other cup five times with the same tool and strength. I will keep the sand and water amounts the same. After tipping out each sample, I will compare how well it holds its shape. This models pressing sediment, one step in forming sedimentary rock.

Accept a test that changes one factor related to pressing while keeping other conditions the same. Students should name an observation they could compare and identify the test as a model of a step in sedimentary rock formation, not as a way to make rock.