Rock Cycle: The Play

Rocky the Magnificent
Geologist
Granite
Limestone
Obsidian
Marble
Schist
Wind Erosion
Water Erosion
Heat
Pressure
Sandstone
Gneiss

Rocky: (In circus-announcer voice) "Ladies and gentlemen! Tonight we present Rocky the Magnificent. He changes rocks—solid rocks!—into other rocks! Come in and sit down, ladies and gents—you won't believe your eyes! Rock #1, please come forward!"

Granite comes forward.

<u>Rocky</u>: Hello, Granite. Please tell us about yourself!

<u>Granite:</u> "Well, I'm an igneous rock. My parts came from way down in the Earth's mantle. Oh, it was hot down there, as the molecules that make up my minerals swam around in the magma. Suddenly there was pressure pushing us up and through the rock above."

<u>Rocky</u>: Wow! That must have taken a lot of strength!

<u>Granite</u>: It sure did. But it didn't happen very fast. As a matter of fact, my parts had a chance to cool and become solid rock miles below the earth's surface.

<u>Rocky</u>: What parts are those?

<u>Granite</u>: Minerals, mostly feldspar, quartz, and mica. Their molecules don't match, so they cooled into different minerals. All together, they make granite!

Rocky: I've heard of you! And now I am going to turn you into sandstone!

Granite: You can't do that. I'm an igneous rock. You can't turn me into a sedimentary rock!

Rocky: Oh no? *He pulls a sheet across the granite symbol, removes it, and replaces it with sandstone*.

Rocky leads audience in cheering and applause. Granite/sandstone sort of fades back, embarrassed. "But wait…"

Rocky: "Never mind. Who is our second rock? "

Limestone: “It’s me, Limestone. Calcium from shells and other places collected on the ocean floor for a long time, and the minerals have been pushed together so long that now I’m a rock.”

Rocky: And from your description, I can tell that you are a sedimentary rock, like that sandstone I just created.

Limestone: Uh, yeah. And, like her, I’m not under the ocean any more. You can find me in dry places.

Rocky: Very nice. Now let’s make you into some lovely marble. Maybe you’ll get carved into a statue.

<u>Limestone</u>. I don’t think so; I’m too soft. Besides, marble is a metamorphic rock, and I’m sedimentary.

<u>Rocky</u>: *turns to speak to audience*: That’s right, ladies and gentlemen—metamorphic—which means it has been changed from something else. And I’m just the one to change it! *Draws the sheet across and replaces Limestone’s sign with Marble.*

Suddenly a geologist comes running onstage.

<u>Geologist</u> *shouts,* “Wait! Wait! This man is an imposter!” *She pulls down the sheet and standing there are Wind erosion, Water erosion, Heat, and Pressure.*

<u>Geologist:</u> Ladies and gentlemen, this man is a fake! Rocks don’t change by magic—they change through natural processes, and here they are, the real magicians!

<u>Rocky</u>: OK, yeah. But it takes a really long time. And these people (*indicating the audience*) don’t have all afternoon!

<u>Geologist</u>: Well, real change doesn’t happen in an afternoon. It takes millions of years. But that change is real, and you are just pretending.

Wind erosion, Water erosion, Heat, and Pressure come forward.

<u>Wind erosion</u>: Yeah, we should get the credit. I don’t know how Rocky talked us into this stupid show.

<u>Geologist</u>: “I don’t either. Tell us about the real show.”

<u>Water erosion</u>: You want to know how granite really became sandstone? Year after year, I rained it on it and loosened parts.

Wind E: Me, too. Wind can be as powerful as water, and I've loosened plenty of rocky bits over time.

Water E. And then when the little rock pieces tumbled down into the river, I kept breaking them into smaller and smaller pieces, and then finally, they were just sand, which my river carried into the ocean.

Pressure: And then, for a long time, more sand got dumped on top, and the ocean and the layers of sand (which are heavy, you know!) pushed down until those little pieces stuck together as a real rock.

Sandstone: And then, a few million years later, the ocean shores changed, or the ocean floor was pushed up into the air, and I was left behind as nice dry sandstone.

Limestone: Yeah, I was left without ocean, as well.

Pressure: And then I came along! You were part of some rock than got pulled under other rock as large underground plates moved around. As you got further down…

Heat…I was there waiting for you! I come along with pressure anyway, but as your block got pulled toward the molten magma down there, I made you very hot—not hot enough to melt you, but hot enough for your minerals to make crystals in different shapes, and voila! Marble!

Rocky: Well, some rock gets made pretty fast, such as obsidian. I could turn that into a stage show, and you can keep your ol' millions-of-years stuff.

Geologist: Good luck with that. While lava can form a thin crust within minutes after it hits the air, it can still take years to cool completely. It forms faster than other rocks, but we're still not talking about an afternoon.

Rocky: Yeah, I guess. But that magma cools into rock—obsidian that looks like glass—pretty fast. *Obsidian comes forward.*

Obsidian: Yeah, so fast that molecules that make up my minerals don't even have time to get in line, so I don't have separate crystals.

Wind E: But sometimes, even *you* get worn down to tiny bits and can be found in sand.

Obsidian: Especially in Hawaii. I love it there.

Geologist: OK, Heat and Pressure, tell us more about what you do.

Heat and Pressure, *both talking fast*: Oh, we get to hang out with so many of you! Obsidian, of course we were part of the hot magma that started you out. And Gneiss and Schist, come over here: *Gneiss and Schist step forward.*

Marble: Hi, guys! It's nice to see some other metamorphic rocks here! And I love your stripes!

Gneiss: Thanks! I have nice wide ones because most of my minerals don't like to lie flat. Sometimes you can even see folds in my stripes.

Schist: And my narrow stripes have beautiful, flaky minerals. Some are even shiny! And Gneiss and I will both have our lovely stripes until we are eroded down to sand.

Gneiss: Or pulled deep into the Earth melted into magma.

Marble: Yes, but it will take so long that we'll be looking good for a long time!

Granite: We sure will! I'm glad we have the rock cycle, or things would get pretty boring after a few million years.

Obsidian: But I'm even gladder that we get to show off…for millions more! All our changes may take way longer than an afternoon, but they're every bit as cool as magic.

Geologist: Cooler!

Rocky slinks off as audience applauds.