

Lesson Topic: The Rock Cycle

Objective:

Students will be able to:

1. Identify the three types of rocks (sedimentary, metamorphic, igneous)
2. Explain how rocks change through the rock cycle.

Time Required: 85 minutes

Materials Needed:

- Starbursts - 4 different colors for each student
- Aluminum foil - 1 piece for each student
- Plastic bag - 1 bag for each student
- Hot plate
- The Rock Cycle handout (attached)
- Teacher computer with internet access
- Projector/Smartboard
- 1 computer/laptop/iPad per student with internet access

Teacher Preparation:

- Make copies of The Rock Cycle handout (1 per student)
- Portion out Starburst activity supplies for each student (4 Starbursts, 1 piece aluminum foil, 1 plastic bag)
- Assign a Legends of Learning Instructional [Quick Play](#) playlist for the day(s) you will be teaching the lesson.
 - Instructional - Middle School - The Rock Cycle
- Assign a Legends of Learning Content Review [Quick Play](#) playlist for the day(s) you will be teaching the lesson.
 - Content Review - Middle School - The Rock Cycle

Engage (30 minutes):

1. Distribute Starburst activity supplies
2. Instruct students to cut or tear the Starbursts into pieces
3. Take all the pieces and mix them into a pile
4. Put all the pieces into your hand and press them together
 - a. After pressed together, instruct students to draw a picture of what the Starbursts look like in the *Rock Type 1* box on hand out
 - b. *Note: This will be an example of Sedimentary rocks*
5. Place the Starburst “rock” into the plastic bag and add heat from your hands and even more pressure. Students can use a book or heavier object help to apply pressure.
 - a. *Rock Type 2* - draw a picture onto handout
 - b. *Note: This is an example of Metamorphic rocks*
6. Have students take their aluminum foil and fold it into a bowl shape. Place the Starburst rock inside
7. Place the aluminum foil bowl with Starburst rock on top of the hot plate using

- appropriate heat. Rotate the bowl so it melts evenly
8. Remove the foil and let the rock cool and harden
 - a. Rock Type 3 - draw a picture onto handout
 - b. *Note: This is an example of Igneous rocks*
 9. After the activity, write the terms *Sedimentary*, *Igneous*, and *Metamorphic* on the board. Explain to students, "These terms are three types of rocks. In the activity, you modeled each type of rock. By the end of our lesson, we will refer back to this activity and label each Starburst rock with the type of rock it models."

Explore (20 minutes):

1. Have your students [sign in to Legends of Learning](#). Instruct students to complete the Instructional playlist.
2. As students complete the assigned game, students should fill out the rest of the Rock Cycle Handout (arrows and rock types).
3. Assist students as needed during game play, pause playlist if you need to address content or questions to the entire class.

Explain (10 minutes):

1. Watch Bill Nye video on Youtube.com
 - a. [Bill nye rock cycle](#)
 - b. Stop video and relate parts of Rock cycle/ rock types back to Starburst activity as needed.
2. Review the answers to the Rock Cycle Handout with the class to ensure students have accurate notes.

Elaborate (10 minutes):

1. Relate student knowledge to Starburst activity at the beginning of class.
 - a. What did all of the cut up pieces of Starburst represent? (sediment)
 - b. When we were squeezing the pieces together, what part of the rock cycle were we completing? (compacting and cementing)
 - c. What type of rock was the Rock Type 1? (Sedimentary)
 - d. What did we do to the Sedimentary rock to change it to Rock Type 2? (heat and pressure)
 - e. What type of rock was the Rock Type 2? (Metamorphic)
 - f. How did the Metamorphic rock change to the last type? (melting and cooling)
 - g. What type of rock was the Rock Type 3? (Igneous)

Evaluate (15 minutes):

1. Have your students [sign in to Legends of Learning](#). Instruct students to complete the Content Review playlist.
2. [Analyze student results](#) to determine what concepts need to be a focus for reteaching.

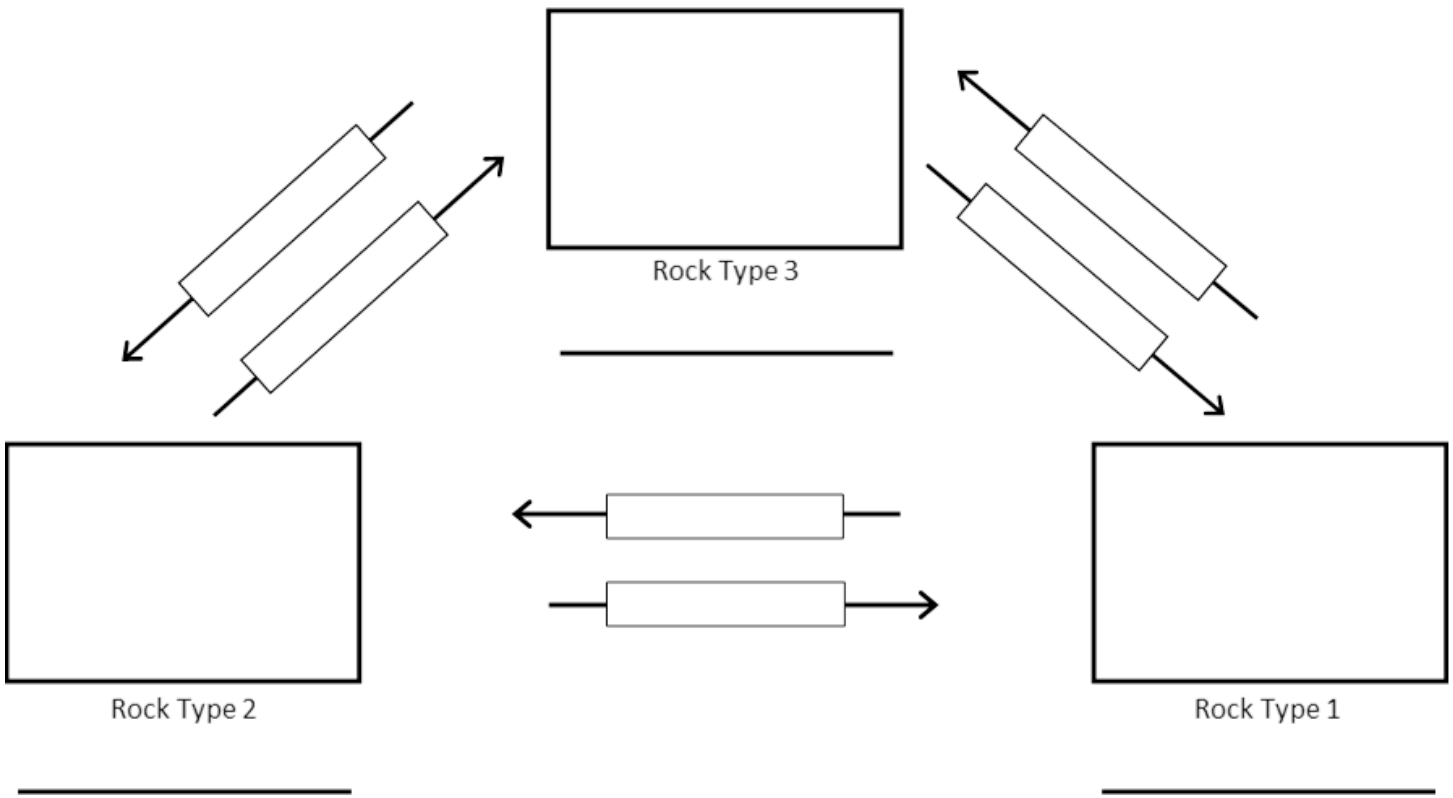
Additional Lesson Strategies:

- To use Legends for additional instruction, create a [custom playlist](#) with an [instructional game](#) and pre and post [assessment](#).



- To use Legends for a quick formative assessment, create a 5-question [assessment](#) in a [playlist](#).
- To use Legends for a student-directed experience, create a [targeted freeplay](#) playlist.
- Encourage students to play on their own at home in [Legends of Learning: Awakening](#) for a student-driven experience including avatars, battling, and quests all centered around topics they are covering in class.

The Rock Cycle



Answer Key

The Rock Cycle

