

EARTH SCIENCE Lesson Plan

Quarter 1, Week 8, Day 1



Outcomes for Today

Standard focus: Earth Sciences 3.c *Students know how to explain the properties of rocks based on physical and chemical conditions in which they formed, including plate tectonics processes.*

PREPARE

1. Background knowledge necessary for today's reading.

Igneous rocks were the first type to form as the Earth's molten surface cooled and solidified. Over time, these rock types have been changed into other rock types, sedimentary and metamorphic.

2. Vocabulary Word Wall.

Introduce 3-5 important, useful words from today's reading

igneous rock magma intrusive extrusive crystallization

- Show, say, explain, expand, explode or buzz about the word briefly
- Show, say and define the word quickly and add to the word wall

READ

3. Review the vocabulary and concepts previously covered in this chapter.

4. Read directions for investigation/activity.

5. Read text.

Ch. 5-1, pp. 99-103

RESPOND

6. Fix the facts. Clarify what's important.

Discuss the reading and add 3-5 events to the billboard

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary
- Decide on the 3-5 most important concepts and post these on the billboard

Students might mention:

- Extrusive igneous rocks cool quickly on Earth's surface and are fine-grained
- Coarse-grained igneous rocks that cooled slowly beneath the Earth's surface are intrusive igneous rocks
- Not all parts of a rock melt at the same because different minerals have different melting points

7. Post information on the billboard. Add new information to ongoing projects on the wall.

- New concept information can be added to the billboard
- An answer can be added to a question from the KWL chart
- New information can be added to ongoing charts and investigations

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: The Rock Story

Procedure: Students view video segments and write a creative story about a rock as it goes through the rock cycle.

Discussion: Discuss how rocks can tell a geologic story

Key Question: Is the rock cycle a one-way cycle?

Source: <http://www.tc-pbs.org/americanfieldguide/teachers/rocks/rocks.pdf>

EXTEND

11. Prompt every student to write a short product tied to today's reading.

12. Close with a short summary.

Extend the reading to the students' or everyday world.

EARTH SCIENCE Lesson Plan

Quarter 1, Week 8, Day 2



Outcomes for Today

Standard focus: 3.c

PREPARE

1. Background knowledge necessary for today's reading.

Igneous rocks are classified as intrusive or extrusive depending on the conditions under which they formed. They are further classified by their mineral composition, texture, density, color, and grain size.

2. Vocabulary Word Wall.

Introduce 3-5 important, useful words from today's reading

Felsic mafic

ultramafic

vein

- Show, say, explain, expand, explode or buzz about the word briefly
- Show, say and define the word quickly and add to the word wall

READ

3. Review the vocabulary and concepts previously covered in this chapter.

4. Read directions for investigation/activity.

5. Read text.

Ch. 5-2, pp. 107-112

RESPOND

6. Fix the facts. Clarify what's important.

Discuss the reading and add 3-5 events to the billboard

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary
- Decide on the 3-5 most important concepts and post these on the billboard

Students might mention:

- Igneous rocks are classified depending on their mineral content as either felsic, mafic, ultramafic or intermediate.
- Different cooling rates affect the formation of crystals. Slow cooling below the surface all for the formation of large crystals.
- Igneous rocks, like granite, are used for building materials because of their strength and durability.

7. Post information on the billboard. Add new information to ongoing projects on the wall.

- New concept information can be added to the billboard
- An answer can be added to a question from the KWL chart
- New information can be added to ongoing charts and investigations

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: Rock Around the Rock Cycle

Procedure: Students illustrate the story written on the previous day or draw a diagram of the rock cycle.

Discussion: Discuss the transformation of one rock type to another.

Key Question: Are all the different stages represented?

Source: www.pbs.org/americanfield guide/teachers

EXTEND

11. Prompt every student to write a short product tied to today's reading.

12. Close with a short summary.

Extend the reading to the students' or everyday world.

EARTH SCIENCE Lesson Plan

Quarter 1, Week 8, Day 3



Outcomes for Today

Standard focus: 3.c

PREPARE

1. Background knowledge necessary for today's reading.

Several processes are required to form sedimentary rock. Existing rock is weathered, eroded, and deposited as sediment. When sediments become compacted and cemented together they form sedimentary rock.

2. Vocabulary Word Wall.

Introduce 3-5 important, useful words from today's reading

Sediment deposition lithification cementation bedding

- Show, say, explain, expand, explode or buzz about the word briefly
- Show, say and define the word quickly and add to the word wall

READ

3. Review the vocabulary and concepts previously covered in this chapter.

4. Read directions for investigation/activity.

5. Read text.

Ch. 121-127

RESPOND

6. Fix the facts. Clarify what's important.

Discuss the reading and add 3-5 events to the billboard

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary
- Decide on the 3-5 most important concepts and post these on the billboard

Students might mention:

- Sedimentary rock is characterized by horizontal layering called bedding.
- Fossils are the preserved remains, impressions or other evidence of once living organisms.

7. Post information on the billboard. Add new information to ongoing projects on the wall.

- New concept information can be added to the billboard
- An answer can be added to a question from the KWL chart
- New information can be added to ongoing charts and investigations

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: MiniLab – What happened here?
P. 126 of the text

Procedure: Students view a photograph of animal footprints in sedimentary rock and draw conclusions

Discussion: Discuss what types of information cannot be inferred from fossils.

Key Question: What information can we deduce from fossils?

EXTEND

11. Prompt every student to write a short product tied to today's reading.

12. Close with a short summary.

Extend the reading to the students' or everyday world.

EARTH SCIENCE Lesson Plan

Quarter 1, Week 8, Day 4



Outcomes for Today

Standard focus: 3.c

PREPARE

1. Background knowledge necessary for today's reading.

Sedimentary rocks are classified by how they were formed. Most sedimentary rocks are made from inorganic land-derived sediments or fragments. Others are result from the compaction and cementation of minerals dissolved in water that precipitates. The third group of sedimentary rocks forms from organic matter.

2. Vocabulary Word Wall.

Introduce 3-5 important, useful words from today's reading

Conglomerates

evaporites

organic

- Show, say, explain, expand, explode or buzz about the word briefly
- Show, say and define the word quickly and add to the word wall

READ

3. Review the vocabulary and concepts previously covered in this chapter.

4. Read directions for investigation/activity.

5. Read text.

Ch. 6-2, pp. 128-132

RESPOND

6. Fix the facts. Clarify what's important.

Discuss the reading and add 3-5 events to the billboard

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary
- Decide on the 3-5 most important concepts and post these on the billboard

Students might mention:

Clastic sedimentary rocks are classified by particle size and shape. Limestone and coal are organic in origin. Sedimentary rocks provide information about Earth's surface in the past.

7. Post information on the billboard. Add new information to ongoing projects on the wall.

- New concept information can be added to the billboard
- An answer can be added to a question from the KWL chart
- New information can be added to ongoing charts and investigations

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: Making Sedimentary Rocks

Procedure: Students will make models of sedimentary rock layers representing different ancient environments

Discussion: Discuss what might account for changes in sea level over time.

Key Question: What clues give us information about past environments?

Source:

http://www.window.ucar.edu/tour/link=/teacher_resources/teach_makerock.html&edu=high

EXTEND

11. Prompt every student to write a short product tied to today's reading.

12. Close with a short summary.

Extend the reading to the students' or everyday world.

EARTH SCIENCE Lesson Plan

Quarter 1, Week 8, Day 5



Outcomes for Today

Standard focus: 3.c

PREPARE

1. Background knowledge necessary for today's reading.

Metamorphic rocks form when igneous, sedimentary or metamorphic rocks undergo changes as a result of pressure and/or heat. However, the heat is not intense enough to cause melting, but allows the atoms in the rocks to rearrange themselves.

2. Vocabulary Word Wall.

Introduce 3-5 important, useful words from today's reading

Metamorphism

hydrothermal

rock cycle

- Show, say, explain, expand, explode or buzz about the word briefly
- Show, say and define the word quickly and add to the word wall

READ

3. Review the vocabulary and concepts previously covered in this chapter.

4. Read directions for investigation/activity.

5. Read text.

Ch. 6-3, pp. 133-139

RESPOND

6. Fix the facts. Clarify what's important.

Discuss the reading and add 3-5 events to the billboard

- Discuss the text; clarify the most important facts, concepts, ideas and vocabulary
- Decide on the 3-5 most important concepts and post these on the billboard

Students might mention:

- There are three types of metamorphism: regional, contact, and hydrothermal
- The rock cycle is a set of processes that allow for the changing of one type of rock into another.

7. Post information on the billboard. Add new information to ongoing projects on the wall.

- New concept information can be added to the billboard
- An answer can be added to a question from the KWL chart
- New information can be added to ongoing charts and investigations

EXPLORE

8. Explore today's investigation with inquiry activities.

9. Explore today's simulation with inquiry activities.

10. Collect data and post.

One possible activity: Grain Orientation Model, TE p. 136

Procedure: Students mix rice grains into clay and roll into a ball shape. Open the ball with a plastic knife and draw the orientation of the grains.

Reform the ball and flatten it down on the desk. Re-cut the clay and draw the orientation.

Discussion: Discuss the differences in the grain orientation.

Key Question: What is the result of high pressure during metamorphism?

EXTEND

11. Prompt every student to write a short product tied to today's reading.

12. Close with a short summary.

Extend the reading to the students' or everyday world.