Rocks and the Rock Cycle

Modified True/False
Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

____ 1. Sedimentary rocks form from rock and mineral fragments, and metamorphic rocks form from existing rock. _____

____ 2. Studying a rock's texture can help scientists determine which type of rock it is. _____

____ 3. Textures are fragments that make up rocks. _____

____ 4. Deposition is a tectonic process that forces rocks onto Earth's surface throughout the rock cycle. _____

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. The processes involved in the rock cycle include all of the following EXCEPT ____.
a. condensation
b. erosion
c. weathering
d. compaction

____ 2. The ____ shows how one rock changes into another.
a. rock cycle
b. melting process
c. formation of crystals
d. none of the above

____ 3. Sedimentary rocks are changed to sediments by ____.
a. weathering and erosion
b. compaction
c. cementation
d. heat and pressure

____ 4. Igneous rocks form from ____ when it cools.
a. magma
b. lava
c. neither a nor b
d. both a and b

____ 5. All of the following conditions in Earth can cause metamorphic rocks to form EXCEPT ____.
a. pressure
b. the presence of hot, watery fluids
c. heat
d. exposure to air

____ 6. Sedimentary rocks are ____.
a. formed from magma
b. a type of foliated igneous rock
c. formed because of changes in temperature and pressure, or the presence of hot watery fluids
d. formed when loose materials become pressed or cemented together or when minerals form from solutions

____ 7. A rock is **always** ____.
a. made of molten material
b. a mixture of minerals, organic matter, volcanic glass, or other materials
c. formed by heat and pressure
d. either igneous or sedimentary

____ 8. Rocks are formed when magma or lava ____.
a. erodes
b. crystallizes
c. undergoes radioactive decay
d. weathers

____ 9. The rock cycle indicates that each type of rock can ____.

a. provide materials to make other rocks
b. form other rocks
c. be changed by forces at Earth's surface
d. all of the above

____ 10. Which type of scientist analyzes the composition of rocks?
a. an environmentalist
b. a naturalist
c. a biologist
d. a geologist

____ 11. Which is a tectonic process that forces rocks up from beneath Earth's surface?
a. melting
b. uplift
c. deposition
d. crystallization

____ 12. Rocks can change throughout many different processes through the rock cycle. All of the following change rocks on Earth's surface except _____.
a. weathering
b. melting
c. deposition
d. compaction

Completion

Complete each statement.

1. Rock formed from the crystallization of magma is called _____.
2. A natural, solid mixture of minerals or grains is called a _____.
3. The three basic types of rocks are igneous, _____, and metamorphic.
4. Sedimentary rocks are formed when _____ is deposited in environments like rivers and streams.

Matching

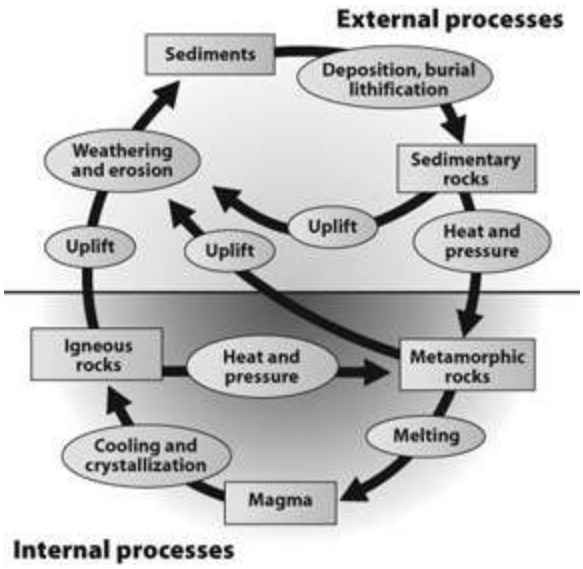
Match the tectonic force that <u>best</u> explains how each type of rock is formed.

a. extreme temperature and pressure
b. melting
c. uplift
d. weathering and erosion

____ 1. igneous rock to sedimentary rock
____ 2. metamorphic rock to igneous rock
____ 3. sedimentary rock to metamorphic rock
____ 4. metamorphic rock to sedimentary rock

Short Answer

Use <u>this</u> rock cycle model to answer the three questions below. Each answer is worth 2 points.



1. According to this rock cycle model, can a sedimentary rock be transformed directly into an igneous rock? Why or why not?

_____
_____
_____
_____
_____
_____

2. Discuss how a metamorphic rock could become a sedimentary rock.

_____
_____
_____
_____
_____

3. Explain the difference between the rectangles and the ovals in this model.

_____
_____
_____
_____

Rocks and the Rock Cycle
Answer Section

MODIFIED TRUE/FALSE

1. ANS: T PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
   STA: 5.4.6.C.2
2. ANS: T PTS: 1 DIF: Bloom's Level 2 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 2 OBJ: 4-3
3. ANS: F, Grains

   PTS: 1 DIF: Bloom's Level 2 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
   STA: 5.4.6.C.2
4. ANS: F, Uplift

   PTS: 1 DIF: Bloom's Level 2 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
   STA: 5.4.6.C.2 | 5.4.6.C.3

MULTIPLE CHOICE

1. ANS: A
   The series of processes that change one type of rock into another type of rock is called the rock cycle.

   PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
   STA: 5.4.6.C.2
2. ANS: A
   The series of processes that change one type of rock into another type of rock is called the rock cycle.

   PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
   STA: 5.4.6.C.2
3. ANS: A
   Forces such as wind, running water, ice, and even gravity cause rocks on Earth’s surface to break down.

   PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
   STA: 5.4.6.C.2
4. ANS: D
   When lava cools and crystallizes, it becomes igneous rock. |
   Igneous rocks that form as magma cools underground are called intrusive rocks.

   PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 2 OBJ: 4-3
   STA: 5.4.6.C.2 | 5.4.8.D.1

5. ANS: D
Changes in temperature, pressure, or the addition of chemical fluids can result in the rearrangement of minerals or the formation of new minerals in a metamorphic rock.

PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
REF: To review this topic refer to Rocks: Lesson 4 OBJ: 4-7
STA: 5.4.6.C.2

6. ANS: D
After sediments are deposited, the process of compaction and cementation begins.

PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
REF: To review this topic refer to Rocks: Lesson 3 OBJ: 4-5
STA: 5.4.6.C.2

7. ANS: B
A rock is a natural, solid mixture of minerals or grains.

PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
STA: 5.4.6.C.2

8. ANS: B
When lava cools and crystallizes, it becomes igneous rock.

PTS: 1 DIF: Bloom's Level 2 | DOK 2-MOD
REF: To review this topic refer to Rocks: Lesson 2 OBJ: 4-3
STA: 5.4.6.C.2 | 5.4.8.D.1

9. ANS: D
The series of processes that change one type of rock into another type of rock is called the rock cycle.

PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
STA: 5.4.6.C.2

10. ANS: D
Geologists use texture and composition to classify rocks.

PTS: 1 DIF: Bloom's Level 2 | DOK 1-LOW
REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
STA: 5.4.6.C.2 | 5.4.8.D.1

11. ANS: B
Uplift is a tectonic process that forces these rocks onto Earth’s surface.

PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
STA: 5.4.6.C.2 | 5.4.8.D.1

12. ANS: B
Some rock cycle processes occur only beneath Earth’s surface, such as those that involve extreme temperature, pressure, and melting.

PTS: 1 DIF: Bloom's Level 2 | DOK 1-LOW
REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
STA: 5.4.6.C.2 | 5.4.6.C.3

COMPLETION

1. ANS: igneous rock

   PTS: 1 DIF: Bloom's Level 2 | DOK 2-MOD
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
   STA: 5.4.6.C.2
2. ANS: rock

   PTS: 1 DIF: Bloom's Level 1 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
   STA: 5.4.6.C.2
3. ANS: sedimentary

   PTS: 1 DIF: Bloom's Level 2 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
   STA: 5.4.6.C.2
4. ANS: sediment

   PTS: 1 DIF: Bloom's Level 2 | DOK 1-LOW
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
   STA: 5.4.6.C.2

MATCHING

1. ANS: D PTS: 1 DIF: Bloom's Level 3 | DOK 2-MOD
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
   STA: 5.4.6.C.2
2. ANS: B PTS: 1 DIF: Bloom's Level 3 | DOK 2-MOD
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
   STA: 5.4.6.C.2
3. ANS: A PTS: 1 DIF: Bloom's Level 3 | DOK 2-MOD
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
   STA: 5.4.6.C.2
4. ANS: C PTS: 1 DIF: Bloom's Level 3 | DOK 2-MOD
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-2
   STA: 5.4.6.C.2

SHORT ANSWER

1. ANS:
   No, in order for a rock to become igneous it must form from magma or melted rock. During the process of melting, a sedimentary rock’s crystals would change making it a metamorphic rock first.

   PTS: 1 DIF: Bloom's Level 3 | DOK 2-MOD
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
   STA: 5.4.6.C.2 | 5.4.6.C.3

2. ANS:
   A metamorphic rock could become a sedimentary rock if it were uplifted to Earth's surface, broken down into sediments by weathering and erosion, and then form a sedimentary rock by litification.

   PTS: 1 DIF: Bloom's Level 3 | DOK 2-MOD
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
   STA: 5.4.6.C.2 | 5.4.6.C.3
3. ANS:
   The rectangles represent materials and the ovals represent processes.

   PTS: 1 DIF: Bloom's Level 3 | DOK 2-MOD
   REF: To review this topic refer to Rocks: Lesson 1 OBJ: 4-1
   STA: 5.4.6.C.2 | 5.4.6.C.3