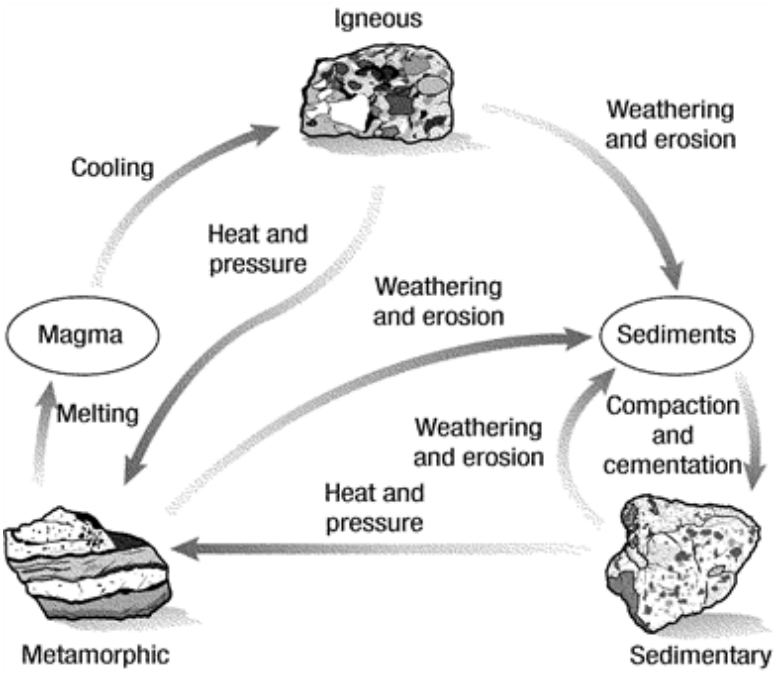
1)



Sedimentary rocks are changed to sediments by _____.

- **A)** compaction
- **B)** weathering and erosion
- **C)** cementation
- **D)** heat and pressure

2) Igneous rocks form from _____ when it cools.

- **A)** magma
- **B)** lava
- **C)** neither a nor b
- **D)** both a and b

3) Foliated rocks are distinguished by _____.

- **A)** layers
- **B)** lack of layers
- **C)** large mineral grains
- **D)** air holes

4) The crystals that form in slowly cooled magma produce _____ mineral grains.

- **A)** tiny
- **B)** invisible
- **C)** fine-grained
- **D)** large

5) Which statement is correct regarding metamorphic rock formation?

- **A)** The temperature inside Earth is cooler which allows metamorphic rocks to form more quickly.
- **B)** Small pieces of rocks are buried, squeezed, and cemented together.
- **C)** Weathering and erosion cause rocks to break down to form metamorphic rocks.
- **D)** The deeper into Earth’s crust, the higher the pressure that forms metamorphic rocks.

6) The rock cycle can change the sedimentary rock limestone into _____ through metamorphosis.

- **A)** conglomerate
- **B)** gneiss
- **C)** granite
- **D)** marble

7) Rocks can change throughout many different processes through the rock cycle. All of the following change rocks on Earth's surface except _____.

- **A)** melting
- **B)** weathering
- **C)** deposition
- **D)** compaction

8) A student uses a candle to model the process of an existing rock becoming an igneous rock. Which procedure **best** demonstrates the formation of an igneous rock?

- ○ **A)** Melt the candle in a dish on a hotplate and keep it in liquid form.

  Rationale: This model would represent how magma forms as rocks are melted deep within or below Earth's crust.

- ○ **B)** Break the candle into small pieces and crush the small pieces until they stick together.

  Rationale: This model would represent how sedimentary rocks form. Rocks are weathered into smaller pieces to become sediment. The sediment can then be compacted until the sediment becomes part of a new sedimentary rock.

- ○ **C)** Place books on top of the candle to apply pressure, and then heat it so its composition changes.

  Rationale: This model would represent an attempt to show the formation of metamorphic rock.

- ○ **D)** Hold the lit candle over a small dish, and then let the melted candle wax that drops into the dish cool and harden.

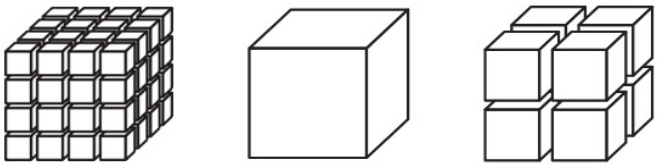
  Rationale: This model would represent how an igneous rock can form. This model would represent how magma forms as rocks are melted deep within or below Earth's crust, and then the magma cools and hardens into igneous rocks.

9) What causes the difference in grain size between intrusive igneous rocks and extrusive igneous rocks?

10) What might happen to the rock cycle if the forces that cause weathering were absent on Earth?

11) Why are fossils more commonly found in sedimentary rocks and not igneous rocks?

12) Sam is given three sets of wooden blocks, as shown. Sam will use the sets to model how rocks change during different parts of the rock cycle.



Describe how Sam can arrange the sets of blocks to model how rocks change as a result of weathering. Justify your reasoning.

Constructed-Response Rubric

PE: MS ESS2-1 *Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.*		
	Level of Understanding	**Evidence of Understanding**
3	**Demonstrating Expected Understanding**	Student response provides **clear** evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems. Student is able to: · describe how to arrange the set of blocks to correctly model how rocks change as a result of weathering; **AND** · justify the reasoning for the arrangement.
2	**Progressing toward Understanding**	Student response provides **partial** evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems. The response lacks some critical information and details or contains some errors. Student is able to: · describe an arrangement of the blocks **AND** provide a justification for the arrangement **BUT** the arrangement is not in the correct order to model weathering; **OR** · describe how to arrange the set of blocks to correctly model how rocks change as a result of weathering **BUT** does not include a justification for the arrangement.
1	**Beginning to Develop Understanding**	Student response is incomplete or provides minimal evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems.
0	**Not Showing Understanding**	Student does not respond or student response is inaccurate, irrelevant, or contains insufficient evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems.
**As outlined in the Performance Expectations (PE) of the NGSS, the three dimensions are the disciplinary core ideas (DCI), science and engineering practices (SEP), and crosscutting concepts (CCC). Note that due to the complexity of the PEs, individual assessment items may not address all three dimensions.*		

Scoring Notes:

Possible answers include:
Sam can place the sets of blocks in the following order: Y, Z, X. This models how rocks change as a result of weathering, because rocks break into smaller pieces during weathering.