

Answers to Review of Chapter 9

1. (1) 2. (4) 3. (3) 4. (2) 5. (1) 6. (4) 13. (2) 14. (4) 15. (1) 16. (3) 17. (2) 18. (4)
7. (1) 8. (3) 9. (2) 10. (4) 11. (1) 12. (3) 19. (1) 20. (3)

Answers to Questions in Reviewing Intermediate-Level Science

SURFACE MATERIALS

Pages 249-251—Laboratory Skill: Identifying Minerals Using a Flowchart

1. You can distinguish between halite and calcite by placing a drop of acid on each. The calcite will bubble. You can also distinguish between the two minerals by tasting them. (This is not recommended.) Halite is common table salt and therefore has a salty taste.
2. The mineral is considered hard.
3. Mineral A is hematite and mineral B is flint.

Pages 252-253—Process Skill 1: How Do Rocks Change from One Type to Another Type?

1. (1) 2. (4) 3. (4)
4. Igneous
5. There are many possible sequences. The following are two simple sequences.
 - (a) melting and solidification
 - (b) heat and/or pressure, metamorphism, melting, and solidification

Review Questions Pages 253-257

Part I

1. (3) 2. (3) 3. (4) 4. (2) 5. (3) 6. (1)
7. (1) 8. (1)

Part II

9. Mineral 1 is gypsum.
10. Mineral 2 is calcite.
11. Mineral 3 is quartz.
12. Mineral 4 is feldspar.
13. Streak color is determined by scratching or rubbing the mineral on the unglazed side of a ceramic tile.

14. Hardness is determined by trying to scratch a mineral with another mineral of known hardness or with common objects of known hardness.
15. Cleavage is determined by breaking the mineral and looking for flat surfaces, corners, or edges.
16. Quartz has a hardness of 7 and calcite has a hardness of 3. Scratch each mineral with the other mineral. The harder mineral is quartz. Place a drop of acid on both. The one that bubbles is calcite.
17. Quartz is harder than glass. The quartz will scratch the glass.
18. Calcite has cleavage. Calcite is more likely to break producing flat surfaces and straight edges.
19. The rhyolite cooled quickly and the granite cooled slowly.
20. If a volcano stops erupting the magma trapped in the volcano will harden into igneous rock and weathering and erosion will wear the volcano down.
21. Sedimentary rock
22. Igneous rocks form from hot liquid rock and cools and hardens.
23. The heated zone would be pre-existing rock that was changed into metamorphic rock.

EARTH HISTORY

Page 260—Process Skill 2: Determining the Sequence of Geologic Events

1. Sedimentary rock C formed first, because it is the bottom (lowest) layer.
2. Igneous intrusion, because the fault shifted the intrusion.

- The order is sedimentation, igneous intrusion, faulting.

Review Questions Pages 261–263

Part I

- (4)
- (4)
- (2)
- (4)
- (2)
- (4)
- (1)

Part II

- The brachiopods lived for about 15 million years.
- The brachiopods became extinct 18 million years ago.
- The rock formed 18–22 million years ago.
- The conglomerate formed first because it is the bottom layer of sedimentary rock.
- The granite formed after the sandstone because the granite cuts through the sandstone, so the sandstone must have been there first.
- 3 (faulting)
 - (deposition)
 - (igneous rock intrusion)
- The trilobites lived about 295 million years.
- The brachiopods became extinct 144 million years ago.
- The rock formed between 408–438 million years ago.

VISUALIZING EARTH'S SURFACE

Page 268 – Process Skill 3: How Is a Compass Used to Determine Direction?

- The compass needle points true north at any location on the line labeled 0. Along this line

magnetic north and true north are in the same direction.

- The degree difference between magnetic north and true north in Washington, D.C. is 10° . That is, magnetic north is 10° west of true north.
- (1)

Review Questions Pages 269–271

Part I

- (2)
- (4)
- (3)
- (2)
- (3)
- (1)
- (2)

Part II

- Line D is a longitude line.
- 25°N , 20°E
- Line B represents the equator.
- Student's topographic map should resemble the map below.

