Earth Science, 14e **(Tarbuck/Lutgens)**
Chapter 3 Rocks: Materials of the Solid Earth

1) Why does magma rise toward the Earth's surface?
A) because it is hot
B) because it is a liquid
C) because it is less dense than the material around it
D) because it is immiscible and cannot combine with the material around it
Answer: C
Diff: 1
Topic: 3.1 Earth as a System: The Rock Cycle
Bloom's Taxonomy: Knowledge/Comprehension

2) What is required for an igneous rock to *weather*?
A) It must move downslope under the influence of gravity.
B) It must be exposed at the surface of the Earth.
C) It must be uplifted from where it was emplaced.
D) It must be deposited by water or ice.
Answer: B
Diff: 1
Topic: 3.1 Earth as a System: The Rock Cycle
Bloom's Taxonomy: Knowledge/Comprehension

3) What is the most common place for sediment to be deposited?
A) rivers
B) beaches
C) mountains
D) oceans
Answer: D
Diff: 1
Topic: 3.1 Earth as a System: The Rock Cycle
Bloom's Taxonomy: Knowledge/Comprehension

4) What is the difference between "magma" and "lava"?
A) Magma is formed deep in the Earth and lava forms near the surface of the Earth.
B) It is just a name change, and lava is what magma is called if it reaches the surface of the Earth.
C) Magma makes igneous rocks and lava forms volcanoes.
D) Magma is less dense than lava.
Answer: B
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

5) Which of the following places is well known for its intrusive igneous rocks that were exposed by erosion?
A) Mount St. Helens Volcano
B) Hawaii
C) Yosemite National Park
D) Yellowstone National Park
Answer: C
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

6) Why do crystals in a magma stop growing during cooling?
A) They run out of space.
B) They run out of heat.
C) They become too dense to grow.
D) The pressure from rocks above becomes too great and the magma stops growing crystals.
Answer: A
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

7) If magma or lava cools quickly, the resulting igneous rock will have _____.
A) more silicate minerals
B) more variations in mineral types
C) very small crystals
D) very large crystals
Answer: C
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

8) Which of the following is **not** a dark silicate mineral?
A) biotite
B) amphibole
C) quartz
D) pyroxene
Answer: C
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

9) Igneous rocks with an andesitic composition _____.
A) are denser than basaltic compositional rocks
B) make up most of the sea floor
C) are denser than granitic compositional rocks
D) are found primarily in continental interiors
Answer: C
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

10) Which of the following is **not** true of peridotite?
A) It is rarely found at the Earth's surface.
B) It is denser than basaltic rocks.
C) It is composed almost entirely of olivine and pyroxene.
D) It is the main constituent of the Earth's crust.
Answer: D
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

11) Rocks that contain high amounts of silica typically also contain _____.
A) iron, magnesium, potassium
B) aluminum, magnesium, and potassium
C) aluminum, sodium, and potassium
D) calcium, magnesium, and potassium
Answer: C
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

12) Intrusive igneous rocks are often characterized as coarse-grained because _____.
A) the pressures at depth cause them to have a rough texture
B) the slow cooling at depth allows large crystals to grow
C) the uplift process that exposes the rock fractures them and makes them rough
D) small holes from escaping gases leave them rough and course
Answer: B
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

13) A porphyritic texture where large crystals are embedded in a matrix of small crystal may form when _____.
A) climate change causes crystals to cool at different rates
B) crystals of different compositions cool at different rates
C) crystals of different compositions grow to different sizes
D) a magma that has partially crystallized slowly moves to a different location where it then cools rapidly.
Answer: D
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

14) Obsidian exhibits a _____ texture.
A) fine-grained
B) glassy
C) coarse-grained
D) porphyritic
Answer: B
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

15) Which igneous texture is characterized by two distinctively different crystal sizes?
A) fine-grained
B) glassy
C) coarse-grained
D) porphyritic
Answer: D
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

16) Granite and gabbro _____.
A) have a similar mineral composition
B) have a similar texture
C) are similar in both texture and mineral composition
D) are not similar in either texture or mineral composition
Answer: B
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Application/Analysis

17) Rhyolite is the fine-grained equivalent of this igneous rock.
A) basalt
B) andesite
C) granite
D) diorite
Answer: C
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

18) Which one of the following is an igneous rock?
A) limestone
B) rhyolite
C) slate
D) shale
Answer: B
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

19) Select from the list below the coarse-grained rock which is composed mainly of quartz and potassium feldspar.
A) basalt
B) andesite
C) granite
D) diorite
Answer: C
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

20) The texture of an igneous rock _____.
A) is controlled by the composition of magma
B) determines the color of the rock
C) is caused by leaching
D) records the rock's cooling history
Answer: D
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

21) Igneous rock is formed _____.
A) by the weathering of preexisting rocks
B) by changes in mineral composition
C) at great depth within Earth
D) by crystallization of magma
Answer: D
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

22) The first step in turning a rock into a sediment is _____.
A) gravity and erosional agents (wind, water, etc.) remove material from the parent rock
B) rock is broken into small pieces during the transportation phase
C) weathering alters the rock
D) compaction
Answer: C
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

23) Most sediment is formed by _____.
A) settling out of a fluid
B) the downhill movement of material during mass wasting
C) the rapid distribution of material in a mountain stream
D) rocks that erode from the bottoms of glaciers
Answer: A
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

24) Which of the following is an economically important sedimentary rock?
A) marble
B) coal
C) pumice
D) calcite
Answer: B
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

25) Which of the following pairs are likely products of weathering granite?
A) sandstone and calcite
B) feldspar and mica
C) clay and quartz
D) olivine and pyroxene
Answer: C
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

26) Which of the following is **not** a product of the chemical weathering of potassium feldspar?
A) silica
B) potassium ions
C) iron oxide
D) clay
Answer: C
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

27) Detrital sedimentary rocks are typically classified on the basis of their _____.
A) lithology
B) texture
C) provenance
D) particle size
Answer: D
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

28) Breccia, a rock with angular particles, is likely to have traveled _____.
A) in a mountain stream
B) only a short distance
C) a long distance
D) in a glacier
Answer: B
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

29) When sand lithifies, the resulting rock is commonly called _____.
A) sandstone
B) shale
C) conglomerate
D) breccia
Answer: A
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

30) The most common sedimentary rock is _____.
A) sandstone
B) shale
C) conglomerate
D) breccia
Answer: B
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

31) Silts and clays are commonly deposited in lakes, lagoons, swamps and marine environments because _____.
A) those settings are more acidic
B) those settings are more basic
C) those settings have relatively still water
D) those settings have highly varied activities and multiple inlets for water
Answer: C
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

32) Chemical sedimentary rocks form from materials _____.
A) carried in solution
B) too fine to see without a microscope
C) that form weak bonds with oxygen
D) all of the above
Answer: A
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

33) Limestone is formed primarily through _____.
A) direct precipitation from seawater
B) chemical interactions between ocean bottom sediments and ions in sea water
C) biochemical sediments secreted by marine organisms
D) evaporation of calcite rich seawater
Answer: C
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

34) Chalk forms from _____.
A) the hard parts of microscopic organisms that accumulate on the sea floor
B) magnesium rich fluids that chemically alter limestone bearing reefs
C) direct precipitation from seawater
D) evaporation of magnesium rich waters
Answer: A
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

35) Which one of the following is **not** related to chemical weathering?
A) decomposition
B) frost wedging
C) hydrolysis
D) oxidation
Answer: B
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

36) Chemical weathering would be most effective _____.
A) in a warm, dry climate
B) in a cold, dry climate
C) in a warm, humid climate
D) equally in any kind of climate
Answer: C
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

37) Travertine, a form of limestone commonly found in caves, forms _____.
A) when water in a cave is heated
B) when water in a cave is cooled
C) when carbon dioxide in the water escapes into the air
D) when carbon dioxide from the air contacts the moisture in the cave
Answer: C
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

38) Death Valley is a site where _____ sedimentary rocks are common.
A) detrital
B) evaporite
C) biochemical
D) clastic
Answer: B
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

39) An important condition for the formation of coal is _____.
A) abundant plant and animal life in a region
B) decomposition of organic matter with abundant oxygen
C) incomplete decomposition of organic matter due to a lack of oxygen
D) acid rich waters that reduce the organic matter to pure carbon
Answer: C
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

40) Sedimentary rocks comprise approximately _____ percent of Earth's outermost 10 miles.
A) 5
B) 15
C) 30
D) 50
Answer: A
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

41) Which rock type is associated with a high-energy environment (such as a very turbulent stream)?
A) conglomerate
B) shale
C) chert
D) none of these
Answer: A
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

42) Detrital sediments would predominate in all of the following environments except _____.
A) swamp
B) salt flat
C) river floodplain
D) delta
Answer: B
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

43) Compaction would probably be most significant as a lithification process for _____.
A) shale
B) sandstone
C) conglomerate
D) breccia
Answer: A
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

44) The most abundant chemical sedimentary rock is _____.
A) limestone
B) dolomite
C) chert
D) rock salt
Answer: A
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

45) Which of the following best describes bedded gypsum and rock salt?
A) detrital sedimentary rocks
B) varieties of dolostone
C) varieties of coal and peat
D) evaporates; chemical, sedimentary rocks
Answer: D
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

46) Coal beds originate in _____.
A) shallow lakes in a dry, desert region
B) channels of fast-moving streams
C) deep, marine basins below wave action
D) freshwater coastal swamps and bogs
Answer: D
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

47) The common source of pressure during compaction of sediments is _____.
A) the weight of the sediments deposited above the compacting sediments
B) the pressure of the sediments pushing the compacting sediments out of the way during deposition
C) the weight of the compacting sediments causing internal pressure
D) the weight of water above the sediments after they are deposited
Answer: A
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

48) For a geologist, the most important characteristic of a sedimentary rock is its _____.
A) texture
B) composition
C) layering
D) lithology
Answer: C
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

49) Metamorphism occurs when a rock _____.
A) experiences conditions that include high temperatures
B) experiences conditions that include high pressures
C) experiences conditions that are significantly different from those that formed the rock
D) experiences conditions that are similar to those that formed the rock
Answer: C
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

50) The low grade metamorphism of shale produces _____.
A) marble
B) schist
C) gneiss
D) slate
Answer: D
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

51) Mountain building causes metamorphism because _____.
A) mountains are heavy and they compress the rocks under them.
B) mountains are heavy and they push shallow, cool rocks to depths where they get heated
C) mountains form by the gradual buildup of material that comes from other areas and this can produce an uneven pressure on rocks
D) all of the above
Answer: D
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Application/Analysis

52) The most important agent(s) of metamorphism, according to your text, is (are) _____.
A) chemically active fluids
B) heat
C) differential stress
D) confining pressure
Answer: B
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

53) The major role of thermal energy (heat) in metamorphism is _____.
A) reducing the strength of rocks so that stress can be an effective agent of change
B) increasing the processes of dissolution and flow of different minerals
C) driving chemical reactions that lead to recrystallization
D) providing energy for the physical changes that occur during metamorphism
Answer: C
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

54) In an area where the temperature increase with depth averages 20°C per kilometer, the temperature at a depth of 5 kilometers would be _____.
A) 100°C
B) 200°C
C) 50°C
D) 20°C
Answer: A
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

55) The quartz in granite begins to melt at 650°C, so if we find a migmatite where quartz has melted in a granitic rock and we know the temperature in the region increased with depth by about 25°C per kilometer, we could estimate the depth that the rock had been at to be about _____.
A) 12.5 km
B) 18.0 km
C) 23.5 km
D) 26.0 km
Answer: D
Diff: 2
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

56) Confining pressure is where _____.
A) forces are applied equally in all directions
B) forces are applied from the top and the bottom equally
C) pressure is applied in a cubic region
D) pressure is parallel to the bedding planes
Answer: A
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

57) When rocks experience high temperatures and differential stresses deep in the Earth, their grains tend to _____.
A) break in small fragments like a piece of fine crystal
B) fracture along planes of weakness
C) flatten and elongate
D) form new minerals
Answer: C
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

58) Chemically active fluids are _____.
A) fluids that readily change to gases at surface conditions
B) fluids that contain large quantities of oxygen which reacts with most minerals to form new minerals during metamorphism
C) more acidic than regular fluids
D) more basic than regular fluids
Answer: A
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

59) Recrystallization during metamorphism causes grains to grow longer in the _____.
A) direction of maximum differential stress
B) direction perpendicular to the compressional stress
C) direction parallel to the compressional stress
D) horizontal direction
Answer: B
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

60) Slate is _____ than shale.
A) more planar
B) darker
C) denser
D) lighter
Answer: C
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

61) Which of the following is **not** an example of a foliation in a metamorphic rock?
A) compositional banding
B) bedding planes and strata
C) parallel alignment of flattened pebbles
D) parallel alignment of platy or flat minerals
Answer: B
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

62) Which of the following changes may occur during metamorphism?
A) Certain minerals may recrystallize.
B) The rock becomes more compact.
C) Crystals may grow larger.
D) all of the above
Answer: D
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Application/Analysis

63) The common rock produced by the metamorphism of limestone is _____.
A) marble
B) mica schist
C) phyllite
D) gneiss
Answer: A
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

64) _____ is composed of alternating bands of light and dark silicate minerals.
A) Marble
B) Mica schist
C) Phyllite
D) Gneiss
Answer: D
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

65) The primary agent of contact metamorphism is _____.
A) folding
B) heat
C) stress
D) strain
Answer: B
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

66) Which of the following lists the rocks in the order of increasing grain size and increasing grade of metamorphism?
A) phyllite, slate, schist
B) schist, slate, phyllite
C) slate, phyllite, schist
D) slate, schist, phyllite
Answer: C
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Application/Analysis

67) Magma differentiation tends to produce deposits of _____ near the base of intrusions.
A) gold
B) silver
C) chromite
D) copper
Answer: C
Diff: 1
Topic: 3.5 Resources from Rocks and Minerals
Bloom's Taxonomy: Knowledge/Comprehension

68) The very large crystals of quartz, feldspar, and muscovite found in pegmatites form from _____.
A) the early crystallizing parts of a magma
B) the final crystallizing parts of a magma
C) the middle crystallizing parts of a magma
D) all of the above
Answer: B
Diff: 1
Topic: 3.5 Resources from Rocks and Minerals
Bloom's Taxonomy: Knowledge/Comprehension

69) The minerals gold, silver and mercury are often found in _____.
A) hydrothermal veins
B) the lower parts of an intrusion
C) disseminated deposits
D) alteration of limestone
Answer: A
Diff: 1
Topic: 3.5 Resources from Rocks and Minerals
Bloom's Taxonomy: Knowledge/Comprehension

70) A major difference between coal and oil/gas is _____.
A) coal forms in deep marine environments and oil/gas form in shallow marine environments
B) coal forms in shallow marine environments and oil/gas form in swamps
C) coal forms in swamps and oil/gas form in marine environments
D) coal forms on land from dinosaurs and oil/gas form from ancient fish
Answer: C
Diff: 1
Topic: 3.5 Resources from Rocks and Minerals
Bloom's Taxonomy: Knowledge/Comprehension

71) In order to get oil and gas in sufficient quantities to make a profit, an oil trap must exist with _____.
A) no fractures or structure
B) permeability and porosity
C) lateral continuity that allows fluids to migrate
D) shale with little or no sulfur.
Answer: B
Diff: 1
Topic: 3.5 Resources from Rocks and Minerals
Bloom's Taxonomy: Knowledge/Comprehension

Word Analysis. Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option which does not fit the pattern.

72) lava magma pahoehoe aa
Answer: magma
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

73) pyroxene plagioclase quartz olivine
Answer: quartz
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

74) granite basalt diorite gabbro
Answer: basalt
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Application/Analysis

75) calcite iron oxide shale silica
Answer: shale
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

76) lithification cementation weathering compaction
Answer: weathering
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Application/Analysis

77) shale sandstone breccia conglomerate
Answer: shale
Diff: 2
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Application/Analysis

78) confining pressure differential stress melting chemical fluids
Answer: melting
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Application/Analysis

79) Under the right circumstances, any rock can be transformed into another type of rock in the rock cycle.
Answer: TRUE
Diff: 1
Topic: 3.1 Earth as a System: The Rock Cycle
Bloom's Taxonomy: Knowledge/Comprehension

80) The change from a sediment to a sedimentary rock typically involves burying the sediment.
Answer: TRUE
Diff: 1
Topic: 3.1 Earth as a System: The Rock Cycle
Bloom's Taxonomy: Knowledge/Comprehension

81) Magma is currently forming beneath the Rockies.
Answer: FALSE
Diff: 1
Topic: 3.1 Earth as a System: The Rock Cycle
Bloom's Taxonomy: Knowledge/Comprehension

82) Lava always erupts violently, but magma often flows quietly.
Answer: FALSE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

83) Crystal size is controlled by temperature.
Answer: FALSE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

84) Igneous rocks are composed primarily of sulfate-type minerals.
Answer: FALSE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

85) Basaltic rocks make up most of the sea floor.
Answer: TRUE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

86) Bowen's reaction series predicts the sizes of the different mineral grains that grow from crystallizing magmas.
Answer: FALSE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

87) Olivine and quartz are commonly found together in the same igneous rock.
Answer: FALSE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

88) One magma can produce several different igneous rocks having different mineral compositions.
Answer: TRUE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

89) Basalt is the fine-grained equivalent of gabbro.
Answer: TRUE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

90) Glassy igneous rocks form when magma cools too fast for mineral grains to grow.
Answer: TRUE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

91) Quartz is quite resistant to weathering and is an important component of sands in riverbeds and on beaches.
Answer: TRUE
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

92) Sedimentary rocks make up approximately 60 percent of the rocks in the Earth's crust.
Answer: FALSE
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

93) Sedimentary rocks are an important source of information about the Earth's history.
Answer: TRUE
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

94) Lignite and bituminous coals are sedimentary rocks.
Answer: TRUE
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

95) The particles in breccia are primarily silt sized.
Answer: FALSE
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

96) The most abundant sedimentary rock is shale.
Answer: TRUE
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

97) Evaporites have a biochemical origin.
Answer: FALSE
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

98) Particle size is the primary basis for distinguishing among various detrital sedimentary rocks.
Answer: TRUE
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

99) Most limestone has a biochemical origin.
Answer: TRUE
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

100) Compaction is most significant as a lithification process for sedimentary rocks composed of sand-sized particles.
Answer: FALSE
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

101) Every metamorphic rock has a parent rock from which it formed.
Answer: TRUE
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

102) During metamorphism, the material undergoing deformation remains a solid.
Answer: TRUE
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

103) In general, recrystallization tends to produce larger crystals.
Answer: TRUE
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

104) Slate is associated with high-grade metamorphism.
Answer: FALSE
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

105) Metamorphism can affect only sedimentary rocks.
Answer: FALSE
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

106) Most of the energy and mineral resources we use are renewable.
Answer: FALSE
Diff: 1
Topic: 3.5 Resources from Rocks and Minerals
Bloom's Taxonomy: Knowledge/Comprehension

107) An igneous rock that cools deep inside the Earth is called a(n) _____ igneous rock
Answer: intrusive
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

108) Igneous rocks that contain mostly quartz and feldspar with small amounts of biotite would be described as having a(n) _____ composition.
Answer: granitic
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

109) Igneous rocks are classified on the basis of what two main characteristics?
Answer: texture and mineral composition
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

110) Obsidian exhibits a(n) _____ texture.
Answer: glassy
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Knowledge/Comprehension

111) If all of the olivine crystallized in a typical magma and then settled to the floor of the magma chamber, would there still be enough elements present in the magma to form quartz?
Answer: Yes, there is much more silicon and oxygen present in a typical magma than iron and magnesium.
Diff: 2
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Application/Analysis

112) Rock salt and rock gypsum are common examples of a group of chemical sedimentary rocks called _____.
Answer: evaporites
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

113) Probably the single most characteristic feature of sedimentary rocks is _____.
Answer: layering (strata or beds)
Diff: 1
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Knowledge/Comprehension

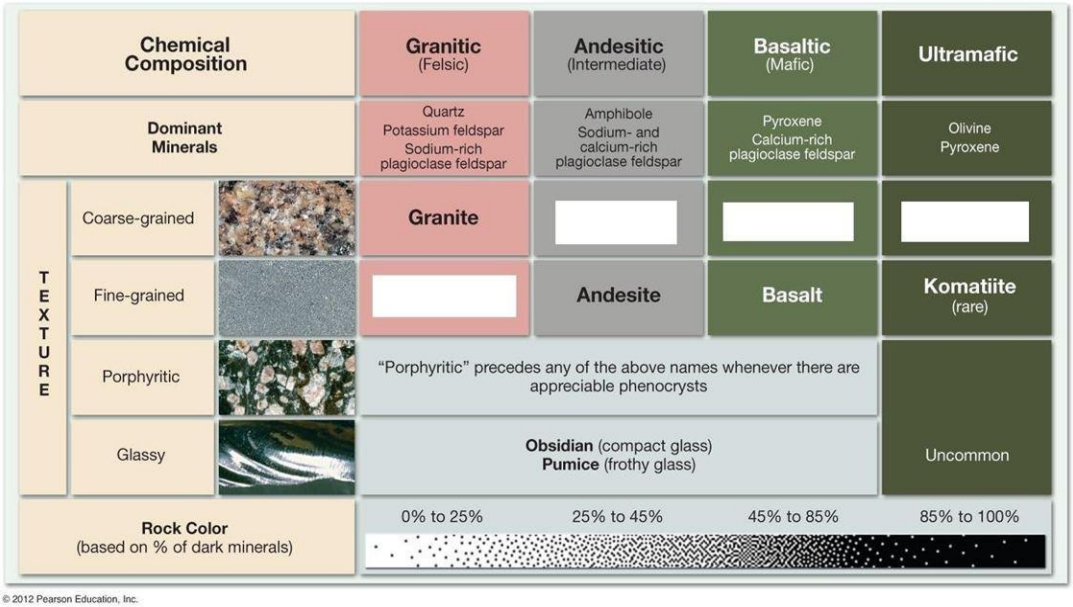
114) List three agents of metamorphism.
Answer: heat, pressure, chemically active fluids
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

115) When a metamorphic rock exhibits a layered or banded appearance, it is said to exhibit a(n) _____ texture.
Answer: foliated
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Knowledge/Comprehension

Critical Thinking and Discussion. Use complete sentences, correct spelling, and the information presented in Chapter 3 to answer the questions below.

116) Why do most sediments end up being deposited in oceans instead of other parts of the Earth?
Answer: There are a few explanations. First, 2/3 of the Earth's surface is oceans so it is most likely that anything on the Earth's surface will be in an ocean. In addition, most streams end in the oceans and the streams are one of the important mechanisms for moving sediment. I would also add that gravity moves things downhill and the ocean basins are generally lower than the continental surfaces.
Diff: 1
Topic: 3.1 Earth as a System: The Rock Cycle
Bloom's Taxonomy: Application/Analysis

117) Fill in the missing rock names on the chart below.

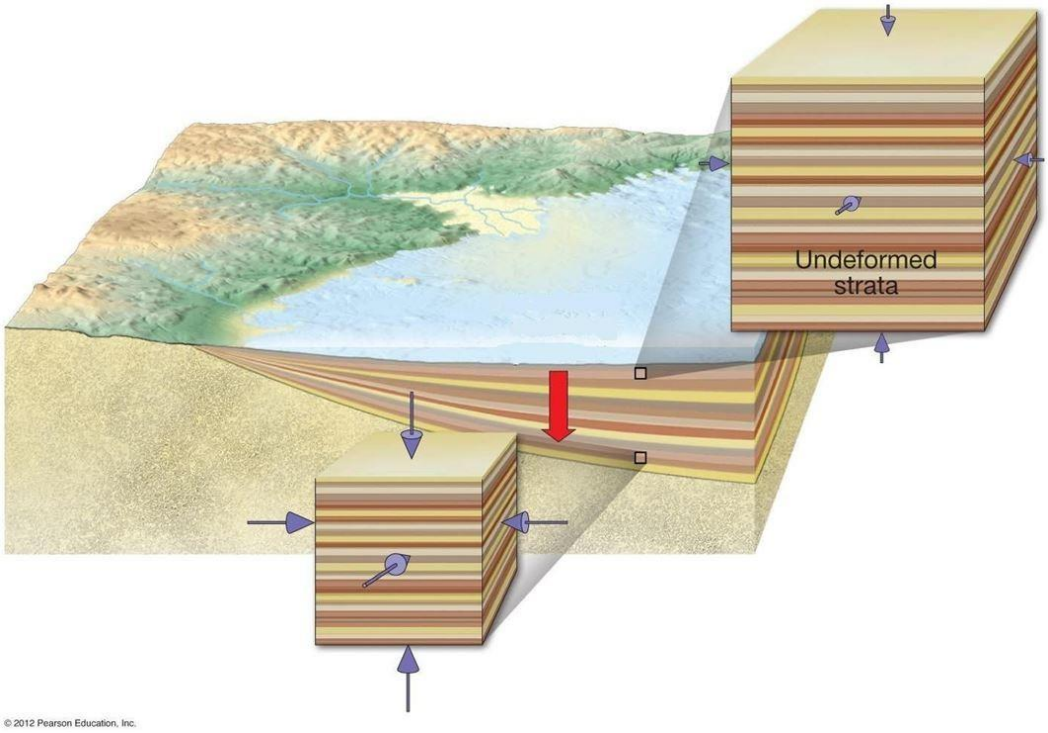


Answer: See Figure 3.7 in *Earth Science*, 14e.
Diff: 1
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Application/Analysis

118) What does Bowen's reaction series tell us about how rocks evolve?
Answer: Bowen's reaction series gives the temperature and order in which minerals crystallize from a magma (or alternatively melting temperature and order). For that reason, we can look at the constituent minerals in an igneous rock and get an idea of the temperature of the magma when it started to cool. Minerals with high cooling temperatures will not usually be found with low cooling temperature minerals and this may indicate that the magma moved after the highest temperature rocks had crystallized.
Diff: 2
Topic: 3.2 Igneous Rocks: "Formed by Fire"
Bloom's Taxonomy: Application/Analysis

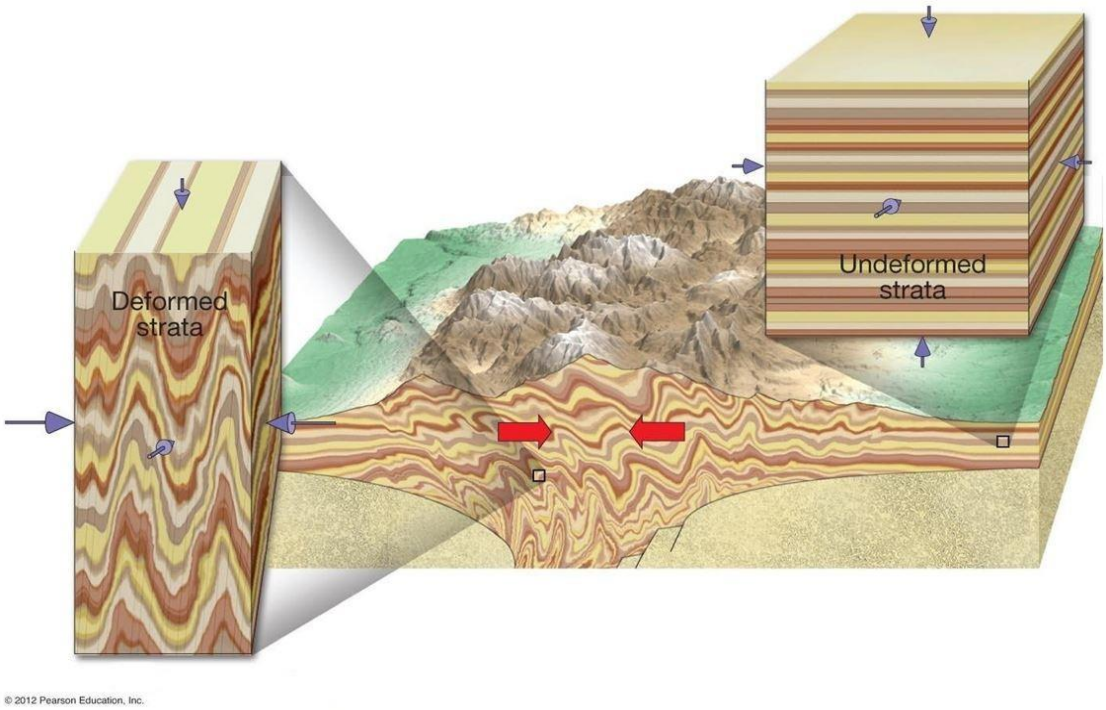
119) Explain why sedimentary rocks are particularly important in studying the past history of the Earth.
Answer: Sedimentary rocks form at the surface of the Earth, and during that process, they record information about conditions during their formation. For example, a poorly sorted conglomerate will indicate the presence of a rapidly moving stream while a breccia will indicate rock types nearby its depositional site and may also indicate instabilities like earthquakes or landslides because of its rapid deposition. The cements indicate the types of fluids traveling through the rocks, and fossils give information about the environment of deposition.
Diff: 2
Topic: 3.3 Sedimentary Rocks: Compacted and Cemented Sediment
Bloom's Taxonomy: Application/Analysis

120) What type of stress (pressure) is illustrated in the diagram below?



Answer: confining pressure
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Application/Analysis

121) What type of stress (pressure) is illustrated in the diagram below?



Answer: differential stress
Diff: 1
Topic: 3.4 Metamorphic Rock: New Rock from Old
Bloom's Taxonomy: Application/Analysis