



**Raven, Berg, Hassenzahl: Environment, 7th Edition**  
**Chapter 16 Minerals**

1. The General Mining Law of 1872 was established to encourage:
  - a) protection of the environment, particularly topsoil and vegetation
  - b) gold mining
  - c) the establishment of national parks
  - d) settlement in the sparsely populated western states
  - e) the preservation of mineral resources

Ans: d

Difficulty: Easy

**Response:**

Chapter Opener; 16.0

2. Two of the first metals to be used by humans to produce bronze were:
  - a) copper and iron
  - b) iron and gold
  - c) copper and tin
  - d) iron and sulfur
  - e) gold and silver

Ans: c

Difficulty: Easy

**Response:**

Introduction to Minerals; 16.1

3. A rock that contains a large enough concentration of a particular mineral to profitably mine and extract it is called a/an:
  - a) atom
  - b) slag
  - c) metal
  - d) ore
  - e) compound

Ans: d

Difficulty: Easy

**Response:**

Introduction to Minerals; 16.1



4. Which of the following is a nonmetallic mineral?
- a) ore
  - b) chromium
  - c) salt
  - d) nickel
  - e) silicon

Ans: c

Difficulty: Easy

**Response:**

Introduction to Minerals; 16.1

5. \_\_\_\_\_ are minerals that are usually malleable, good conductors of heat and electricity, and lustrous.
- a) rocks
  - b) high-grade ores
  - c) low-grade ores
  - d) metals
  - e) nonmetals

Ans: d

Difficulty: Easy

**Response:**

Introduction to Minerals; 16.1

6. \_\_\_\_\_ form when weathered fragments of smaller rocks are deposited and cemented together.
- a) aggregate rocks
  - b) igneous rocks
  - c) metamorphic rocks
  - d) sedimentary rocks
  - e) none of these

Ans: d

Difficulty: Easy

**Response:**

Introduction to Minerals; 16.1



7. A significant portion of the world's known supply of copper is located in:
- a) Chile and the United States
  - b) China and India
  - c) South Africa
  - d) Germany and France
  - e) Antarctica

Ans: a

Difficulty: Easy

**Response:**

Mineral Distribution and Formation; 16.1.1

8. Magmatic concentration:
- a) occurs when sands and gravels accumulate in riverbeds
  - b) separates iron-containing rocks from silicon-containing rocks
  - c) results in the separation of rock layers based on grain size
  - d) cannot occur in areas with volcanic activity
  - e) involves the heating of groundwater

Ans: b

Difficulty: Easy

**Response:**

Mineral Distribution and Formation; 16.1.1

9. Hydrothermal processes:
- a) occur when groundwater is heated and forced through spaces in rocks
  - b) are responsible for deposits of zinc, lead and copper.
  - c) are based on the ability of minerals to dissolve in hot water
  - d) promote the formation of insoluble metal sulfides
  - e) all of these

Ans: e

Difficulty: Easy

**Response:**

Mineral Distribution and Formation; 16.1.1



10. Chemical and physical weathering processes are part of which mineral deposit-forming process?
- a) magmatic concentration
  - b) hydrothermal mineral concentration
  - c) sedimentation
  - d) evaporation
  - e) forming a spoil bank

Ans: c

Difficulty: Easy

**Response:**

Mineral Distribution and Formation; 16.1.1

11. Evaporation:
- a) increases the concentration of dissolved minerals in the remaining water
  - b) can occur in bodies of water that exchange large volumes with the ocean
  - c) occurs when warm river water meets colder ocean water
  - d) leads to extensive deposits of tin, copper, and iron
  - e) is responsible for the formation of nickel and manganese deposits

Ans: a

Difficulty: Easy

**Response:**

Mineral Distribution and Formation; 16.1.1

12. \_\_\_\_\_ use a variety of instruments to locate valuable mineral deposits.
- a) Astronomers
  - b) Ecologists
  - c) Geologists
  - d) Marine biologists
  - e) Meteorologists

Ans: c

Difficulty: Easy

**Response:**

How Minerals are Found, Extracted, and Processed; 16.1.2

13. The hill of loose rock produced as a by-product of strip mining is known as:

- a) an overbank
- b) a spoil bank
- c) an open pit
- d) acid mine drainage
- e) tailings

Ans: b

Difficulty: Easy

**Response:**

How Minerals are Found, Extracted, and Processed; 16.1.2

14. Which of the following is used to separate impurities from molten metal?

- a) tailings
- b) phytoremediation
- c) mine drainage
- d) smelting
- e) recycling

Ans: d

Difficulty: Easy

**Response:**

How Minerals are Found, Extracted, and Processed; 16.1.2

15. Acids and other toxic substances that cause problems when they enter streams and the groundwater system are called:

- a) tailings
- b) slag
- c) spoil banks
- d) acid mine drainage
- e) overburden

Ans: d

Difficulty: Easy

**Response:**

Mining and the Environment; 16.2.1

16. Reclamation of the environment surrounding Ducktown, Tennessee has involved:
- a) the addition of fertilizer
  - b) using advanced technology to extract all of the residual mine and smelting toxins from the soil
  - c) reintroduction of animals, including birds and field mice
  - d) reconstitution of the original, complex forest ecosystem in just three decades
  - e) establishment of a preserve and national park on the old mining site

Ans: a

Difficulty: Easy

**Response:**

Environmental Impacts Associated with Minerals; 16.2

17. Which of the following can be used to help remove pollutants from water draining away from mining lands?
- a) topsoil
  - b) legume plants
  - c) seeds
  - d) fertilizer
  - e) wetlands

Ans: e

Difficulty: Easy

**Response:**

Restoration of Mining Lands; 16.2.4

18. Phytoremediation is a process used to:
- a) remove impurities from metal ores
  - b) absorb toxic materials from the soil
  - c) treat harmful gases produced by smelting
  - d) neutralize acid mine drainage
  - e) minimize erosion in open-pit mines

Ans: b

Difficulty: Easy

**Response:**

Restoration of Mining Lands; 16.2.4

19. \_\_\_\_\_ is an impurity in many mineral ores and can cause acid rain when it escapes during the smelting process.
- a) arsenic
  - b) cadmium
  - c) lead
  - d) sulfur
  - e) zinc

Ans: d

Difficulty: Easy

**Response:**

Environmental Impacts of Refining Minerals; 16.2.2

20. What usually happens with mine tailings?
- 1) they are left in piles on the ground
  - 2) they are removed using phytoremediation
  - 3) they are treated with scrubbers
  - 4) they are treated with electrostatic precipitators
- a) 1
  - b) 2
  - c) 3
  - d) 4
  - e) Both 3 and 4

Ans: a

Difficulty: Easy

**Response:**

Environmental Impacts of Refining Minerals; 16.2.2

21. Mineral resources include:
- a) deposits that have been identified and located
  - b) deposits of low-grade ores, which may be profitable to extract in the future
  - c) deposits of high-grade ores
  - d) deposits that have not been identified yet
  - e) all of these

Ans: e

Difficulty: Easy

**Response:**

Will We Run Out of Important Minerals?; 16.3.3

22. A bacterial genus that shows promise in "biomining" of certain valuable minerals, like copper, is:
- a) Arctostaphylos
  - b) Thiobacillus
  - c) Rhizobium
  - d) Streptococcus
  - e) Marchantia

Ans: b

Difficulty: Easy

**Response:**

Advanced Mining and Processing Technologies; 16.4.4

23. Provisions of the U.N. Convention on the Law of the Sea (UNCLOS):
- a) prohibit all seabed mining
  - b) apply only to international waters
  - c) were developed primarily by the United States
  - d) have been ratified by all countries that have oceanic borders
  - e) none of these

Ans: b

Difficulty: Easy

**Response:**

Minerals from the Ocean; 16.4.3

24. Which of the following is a mineral?
- a) bronze
  - b) coal
  - c) gold
  - d) petroleum
  - e) Water

Ans: c

Difficulty: Medium

**Response:**

Introduction to Minerals; 16.1



25. Which of the following is not a mineral?

- a) sulfides
- b) oxides
- c) copper
- d) steel
- e) gold

Ans: a

Difficulty: Medium

**Response:**

Introduction to Minerals; 16.1

26. Which of the following minerals is incorrectly paired with its use(s)?

- a) aluminum – electrical wiring
- b) iron – steel
- c) sand – glass and concrete
- d) sulfur – making plastics and fertilizers
- e) gold – jewelry and money

Ans: a

Difficulty: Medium

**Response:**

Introduction to Minerals; 16.1

27. Which of the following mineral concentration processes does not require water?

- a) magmatic concentration
- b) evaporation
- c) hydrothermal processes
- d) sedimentation
- e) none of these, all require water

Ans: a

Difficulty: Medium

**Response:**

Mineral Distribution and Formation; 16.1.1



28. Which region of the world is correctly matched with the mineral concentrated in that area?
- a) chromium - South America
  - b) copper – Asia
  - c) iron – Africa
  - d) tin – China
  - e) copper - South Africa

Ans: d

Difficulty: Medium

**Response:**

Mineral Distribution and Formation; 16.1.1

29. Surface mining is more common than subsurface mining because it:
- a) is less expensive
  - b) does not cause as much land disturbance
  - c) requires fewer spoil banks
  - d) does not cause any water pollution
  - e) none of these; subsurface mining is more common

Ans: a

Difficulty: Medium

**Response:**

How Minerals are Found, Extracted, and Processed; 16.1.2

30. Which of the following is not an environmental impact of mining?
- a) enrichment of waterways
  - b) groundwater depletion
  - c) erosion
  - d) acid mine drainage
  - e) air pollution

Ans: a

Difficulty: Medium

**Response:**

Mining and the Environment; 16.2.1



31. Smelting of which of the following is done in a blast furnace:

- a) copper
- b) tin
- c) lead
- d) iron
- e) all of these

Ans: e

Difficulty: Medium

**Response:**

How Minerals are Found, Extracted, and Processed; 16.1.2

32. The environmental damage near Ducktown, Tennessee was caused by:

- a) coal mining and ash ponds
- b) copper mining and smelting
- c) gold mining and smelting
- d) strip mining for diamonds
- e) open-pit mining for sand and gravel

Ans: b

Difficulty: Medium

**Response:**

Environmental Impacts Associated with Minerals; 16.2

33. The environmental damage in the Copper Basin, Tennessee region involved all of the following except:

- a) destruction of nearby aquatic communities
- b) deforestation
- c) acid precipitation
- d) soil erosion
- e) none of these, all occurred in the Copper Basin area

Ans: e

Difficulty: Medium

**Response:**

Environmental Impacts Associated with Minerals; 16.2