

Skills Worksheet

Critical Thinking**ANALOGIES**

In the space provided, write the letter of the pair of terms or phrases that best complete the analogy. An analogy is a relationship between two pairs of words or phrases written as **a : b :: c : d**. The symbol **:** is read "is to," and the symbol **::** is read "as."

- _____ 1. scrubber : smokestack ::
a. ZEV : smog
b. catalytic converter : tailpipe
c. VOCs : gasoline pumps
d. car seats : vinyl chloride
- _____ 2. particulate matter : primary pollutant ::
a. asbestos : radon
b. ground-level ozone : secondary pollutant
c. sulfur dioxide : fossil fuels
d. VOC : smog
- _____ 3. temperature inversion : smog ::
a. sick-building syndrome : indoor air pollution
b. ZEV : emissions
c. catalytic converter : emissions
d. carpets : formaldehyde
- _____ 4. radon : lung cancer ::
a. ozone : VOCs
b. ventilation : indoor pollution
c. asbestos : fire retardant
d. noise pollution : hearing loss
- _____ 5. shielding : light pollution ::
a. mold : indoor pollution
b. scrubber : noise pollution
c. SO₂ : acid precipitation
d. ZEV : air pollution
- _____ 6. acid precipitation : Canada-U.S. Air Quality Agreement ::
a. sick building syndrome : ZEV
b. air pollution : Clean Air Act
c. ventilation : sick-building syndrome
d. sea-coal : medieval air pollution
- _____ 7. bronchitis : emphysema ::
a. fossil fuel : nuclear power
b. ZEV : VOC
c. pneumonia : lung cancer
d. lumens : light pollution
- _____ 8. 10 dB : 40 dB ::
a. pH 2 : pH 5
b. pH 7 : pH 5.6
c. 40 dB : 50 dB
d. pH 1 : pH 10
- _____ 9. acid precipitation : sulfur oxides, nitrogen oxides, water ::
a. air pollution : dust, pollen, spores
b. ozone : vehicle emissions, sunlight, oxygen
c. VOCs : smog
d. light pollution : sodium lamps
- _____ 10. vehicles, industry : outdoor air pollution ::
a. nitrogen, oxygen : volcanoes
b. farming, fires : construction
c. ear protection : noise pollution
d. plastics, building materials : indoor air pollution

Critical Thinking *continued***INTERPRETING OBSERVATIONS**

Read the following passage, and answer the questions that follow.

Lake Sulfox is having some problems with its fish population. Commercial fishermen are claiming that their catches have declined, and they are blaming the decline on the supposed acidification of the lake by a local coal-fired power plant. The Lake Sulfox Advisory Board has the following data on file. Higher sulfate levels in the lake mean greater acidity. Assume that the size of the fish harvest is a good indicator of the size of the fish population.

Annual Fish Harvest (metric tons)					
1998	1999	2000	2001	2002	2003
7500	6924	6322	5412	5503	5113

Mean Sulfate Levels (ppm)					
1998	1999	2000	2001	2002	2003
41.07	51.34	54.89	57.46	58.76	59.65

- 11.** What is the apparent relationship between the size of the fish harvest and the sulfate levels in the lake?

- 12.** Do the data prove that acidification of the lake by sulfates is responsible for the decline in the lake's fish population? Provide at least two reasons to support your viewpoint.

Critical Thinking *continued*

AGREE OR DISAGREE

Agree or disagree with the following statements, and support your answers.

- 13.** It is lifestyle choices, such as smoking tobacco, rather than air pollution that causes the large number of respiratory diseases found in today's society.

- 14.** Mass transit in cities could go a long way to reduce urban air pollution.

- 15.** Air pollution is an international problem that can only be solved through global treaties.

- 16.** Noise pollution does not lead to long-term health effects on the human body.

Critical Thinking *continued*

REFINING CONCEPTS

The statements below challenge you to refine your understanding of concepts covered in the chapter. Think carefully, and answer the questions that follow.

- 17.** A company plans to correct sick-building syndrome in its headquarters. The company will remove moldy carpeting, install brand-new carpeting, and seal up all cracks in the building in order to keep out new mold and fungus spores. The air ducts will be left alone because they have worked fine for years without any cleaning. Suggest any ways that the company should change its plans, and explain the reason for each change.

- 18.** The wind blows across Country A and into Country B. Country A has electric power plants that burn fossil fuels, and lakes with a pH of 5.1. Country B has power plants run by moving water (hydroelectric), and lakes with a pH of 4.2. Explain how this can be. What could the two countries do to correct the situation?

- 19.** Manufacturing is often blamed for producing air pollution. However, according to economic theory, it is neither technologically feasible nor economically efficient to completely eliminate pollution. What do you think? Explain your reasoning.
