

Skills Worksheet

Critical Thinking

ANALOGIES

In the space provided, write the letter of the pair of terms or phrases that best complete the analogy shown. 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.

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|--|--|
| _____ 1. food chain : food web ::
a. eating : chewing
b. simple : complex
c. ant : spider
d. lake : ocean | _____ 6. geology : meteorology ::
a. wet : dry
b. star : starfish
c. lake : stream
d. rocks : atmosphere |
| _____ 2. producer : consumer ::
a. user : maker
b. chef : diner
c. painter : painting
d. sleeping : eating | _____ 7. water : hydrosphere ::
a. rock : geosphere
b. raindrop : tornado
c. ice : water vapor
d. air : biosphere |
| _____ 3. pollution: contamination ::
a. clean : dirty
b. dilute : concentrate
c. litter : paper
d. corruption : adulteration | _____ 8. tides : currents ::
a. puddle : rain
b. flood : downpour
c. wind : waves
d. desert : arid |
| _____ 4. weight : mass ::
a. newton : kilogram
b. gram : ounce
c. gravity : magnetism
d. surface : core | _____ 9. open system : matter ::
a. closed system : Earth
b. open system : lake
c. fuel : fire
d. closed system : energy |
| _____ 5. crust : core ::
a. pie : cake
b. middle : end
c. surface : center
d. lower : upper | _____ 10. evaporation : water vapor ::
a. density : porosity
b. condensation : water droplets
c. hail : ice
d. transpiration : water |

INTERPRETING OBSERVATIONS

Read the following passage and answer the questions below.

In the United States alone, industries pump approximately 2.4 billion tons of chemicals into the air yearly. In addition, motor vehicle emissions, windblown dust, volcanic ash, smoke, and other particulates are released into our air. The result? Air pollution.

Air pollution eats away at Earth's protective ozone layer. It dirties our water and affects the health of plants, animals, and people. Although air pollution is more concentrated, and therefore, more dangerous, in urban areas, no one is immune to its effects. Local and global winds spread the pollutants worldwide.

An adult breathes more than 3,000 gallons of air daily, and children breathe even more per pound of body weight. Therefore, even a slight increase in pollution can have a great impact on those who must breathe the air.

Some health effects of air pollution are short-term—eye and throat irritation and difficulty breathing are common complaints. Long-term exposure to heavy air pollution can be more than irritating: it can be deadly. Cancers and damage to respiratory, immune, neurological, and reproductive systems can be caused by, or aggravated by, exposure to air pollution.

11. Who and what are affected by air pollution?

12. Can you escape the effects of air pollution by moving to a rural area? Explain your answer.

13. Are adults or children more liable to be damaged by air pollution? Explain your answer.

14. Why do you think that air pollution damages the immune, neurological, and reproductive systems in addition to the respiratory system?

Critical Thinking *continued*

AGREE OR DISAGREE

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

15. The combining of knowledge from different scientific fields in order to study Earth as a system is more efficient and effective than isolating scientific fields such as geology, meteorology, and oceanography.

16. The water cycle is the most important of all cycles in the Earth system.

17. Since all natural cycles can easily be altered by human activities, humanity has a responsibility to preserve the natural order and balance of these cycles and Earth's resources.

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.

18. Scientists have suggested that the extinction of the dinosaurs began when a huge meteor hit Earth with power that has never been witnessed since. So much debris was thrown into the air that the sun was obscured and Earth's surface temperature declined significantly. At this point, did Earth more resemble a closed system or open system? Explain your answer.

19. A package mailed from Hawaii weighs about 19.94 kg. The very same package mailed from Oslo, Norway, weighs 20 kg. How can you explain the difference?

20. Consider the scientific definition of *matter*. Is your brain matter? Are your thoughts and ideas matter? Explain your answer.
