

Skills Worksheet

Critical Thinking**ANALOGIES**

In the space provided, write the letter of the pair of terms or phrases that best completes 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."

- _____ 1. stratosphere : troposphere
::
a. biosphere : water
b. mantle : core
c. water cycle :
lithosphere
d. ocean : phytoplankton
- _____ 2. seismic waves :
earthquake ::
a. temperature : gas
b. weather : air
c. greenhouse effect
:atmosphere
d. electromagnetic
radiation : sun
- _____ 3. tectonic plates :
asthenosphere ::
a. core : crust
b. atmosphere : gases
c. volcano : eruption
d. ice sheets : pond
- _____ 4. winds : atmosphere ::
a. currents : hydrosphere
b. salinity : ocean
c. earthquakes :
ionosphere
d. ocean : climate
- _____ 5. plants : sunlight ::
a. water : evaporation
b. organisms : water
c. air : nitrogen
d. erosion : rock
- _____ 6. river : gorge ::
a. erosion : gas
b. wind : tall rock
formation
c. water : wind
d. sediments : rocks
- _____ 7. convection current :
weather ::
a. Richter scale :
magnitude
b. eruption : climate
c. plate collision :
mountain
d. thermosphere
:temperature
- _____ 8. aquifer : groundwater ::
a. life : oxygen
b. ocean : radiation
c. atmosphere : water
vapor
d. biosphere : land

INTERPRETING OBSERVATIONS

Read the following paragraphs, and answer the questions below.

Alfred Wegener, a German who was educated as a meteorologist and geologist, was one of the first scientists to theorize about tectonic plates. Wegener suggested that past continents had drifted apart over time to form the present continents. This rearrangement of continents is known as continental drift.

Wegener published his first complete statement on continental drift in 1912. He supported his research by attempting to piece together the edges of the continents in order to reconstruct a formed supercontinent. Wegener believed that large blocks of the crust (tectonic plates) could, over very long periods of time, flow slowly over the mantle. Wegener's theories remained the subject of criticism until the 1960s, when geological evidence confirmed that the ocean floors had been spreading and that large crustal blocks were, in fact, moving. Plate tectonic theory has become the cornerstone of modern geology. A crater on the moon was named in honor of Alfred Wegener, "the father of plate tectonics."

9. What title would you give this essay?

10. Suppose Wegener had more concrete evidence to support his theories when his papers were first published. Do you think his peers would have accepted his theories more readily? Why or why not?

11. Describe one aspect of the map of the world that hints Wegener's theory might be correct.

Critical Thinking *continued*

AGREE OR DISAGREE

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

12. Because scientists are unable to predict when and precisely where an earthquake will occur, the government has a duty to issue building codes to ensure that all structures can withstand earthquakes.

13. Individuals, as well as industry—and automobile manufacturers in particular have an obligation to work to reduce carbon dioxide emissions that may increase the level of greenhouse gases in the atmosphere.

14. We need to recycle our waste because Earth is a closed system with respect to matter, and new matter does not enter the environment.
