



**Orange County
Public Schools**

District Assessment

Science

Earth/Space Science PreTest

Grade 8

**OCPS Earth/Space Science Quarterly Assessment
First Quarter**

Use the information below to answer questions 1 through 3:

While preparing to cook some pasta, Antoine noticed that the directions on the package said to add a tablespoon of salt to the water before boiling the pasta. He wondered what effect the salt would have on the temperature at which the water boils. Antoine thought that adding salt to the water would probably cause it to boil at a higher temperature. He decided to perform an experiment to see if he was correct.

Under adult supervision, Antoine used a thermometer to determine the temperature of the water in three pots. He did not put any salt in pot A. He added two grams (2g) of salt to pot B and four grams (4g) of salt to pot C. He brought each pot to boiling. Pots B and C briefly stopped boiling. When they came back to a boil, he took the temperature of each pot again. Antoine's data is recorded in the table below.

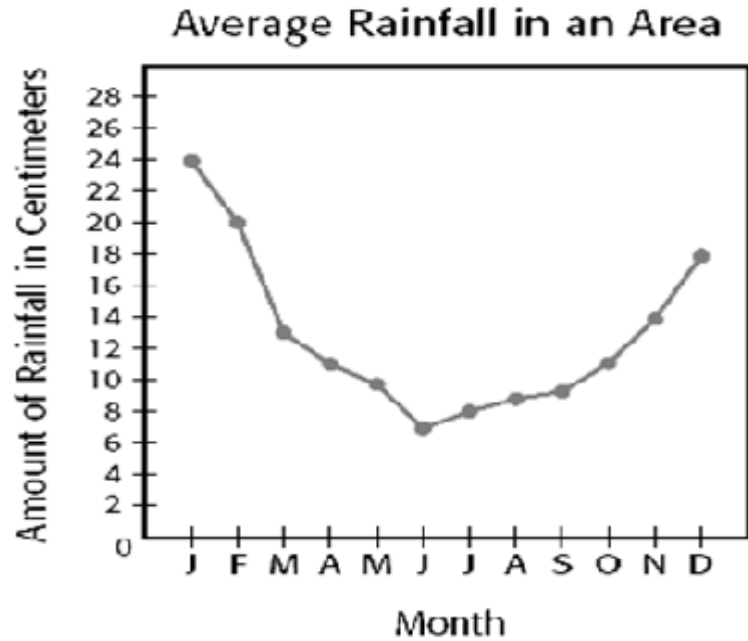
Temperature Results

Pot	Beginning Temperature ($^{\circ}\text{C}$)	Salt (grams)	Temperature ($^{\circ}\text{C}$) at second boil
A	100.3	0	100.3
B	100.3	2	103.9
C	100.3	4	105.7

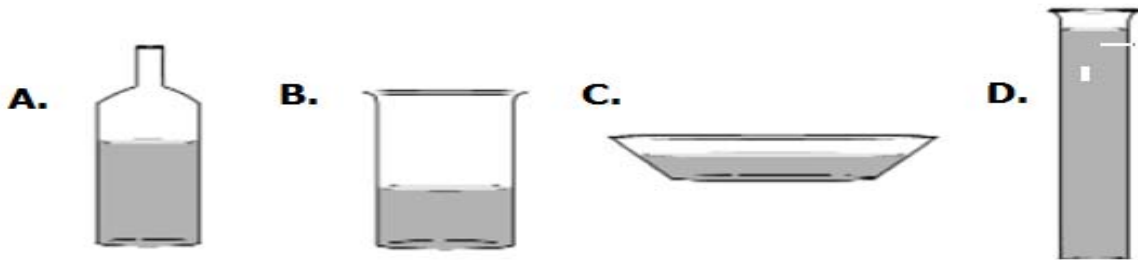
- Based on his experiment, Antoine thinks that adding sugar to water would produce the same results as the salt. This idea is best referred to as _____.
 - a hypothesis
 - an evaluation
 - a conclusion
 - an observation
- The best way for Antoine to verify that his results are accurate is to _____.
 - show the results to his teacher
 - submit the results to the science fair
 - repeat the experiment under identical conditions
 - repeat the experiment using sugar instead of salt
- Based on the results of the experiment, the most logical conclusion for why pasta directions include adding salt to the water is _____.
 - to keep the water from evaporating too quickly
 - so that you do not have to add salt to the pasta after cooking it
 - because the higher boiling temperature will cook the pasta faster
 - to increase the density of the water so it will not boil over and out of the pot

4. Use the graph below to determine how much more rain fell in January than in November.

- A. 4 centimeters
- B. 10 centimeters
- C. 14 centimeters
- D. 16 centimeters



5. A student put 100 mL of water in each of the open containers and then placed them in the sun for one day. Which container probably lost the most water due to evaporation?



6. Most of the water on Earth is held in:

- A. large lakes and streams.
- B. ground water.
- C. the oceans.
- D. glacial ice.

7. Which of the following is not a normal “path” for water to follow once it reaches the surface of the Earth?

- A. condensation
- B. run-off into rivers
- C. soak into the ground to become ground water
- D. evaporation

8. Which of the following is associated with a closed system?

- A. materials are gained into the system
- B. materials are cycled and recycled
- C. materials are lost from the system
- D. no movement of materials occurs

9. The total volume of water on Earth is:

- A. decreasing because water evaporated from the ocean gets tied up in the atmosphere.
- B. increasing because water evaporated from oceans falls as precipitation on land.
- C. almost constant but continuously in motion from one reservoir to another.
- D. increasing because water held in groundwater is brought to the surface for human use.

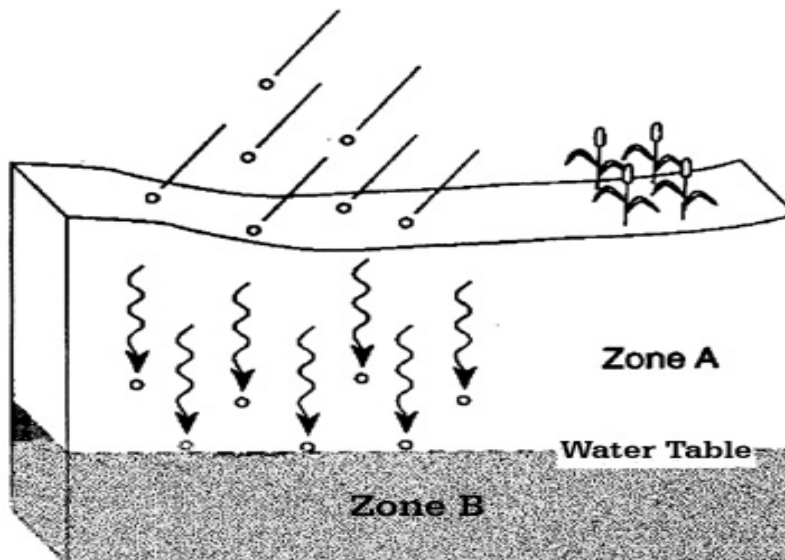
10. Ground water flows:

- A. clockwise in the northern hemisphere.
- B. from cold climates to warm climates.
- C. from where the ground is wet to where it is dry.
- D. from where the water table is high to where it is low.

11. Why is the Earth's surface water not really a closed system?

- A. water is gained as meteorites impact the Earth
- B. water is lost to the biosphere and gained from the system as rain or snow
- C. water is lost for long periods of time in rocks and gained through volcanic eruptions
- D. some of the water that evaporated never returns to the Earth's surface

The diagram below is a cross-sectional view of rain falling on a farm field and then moving to the water table.



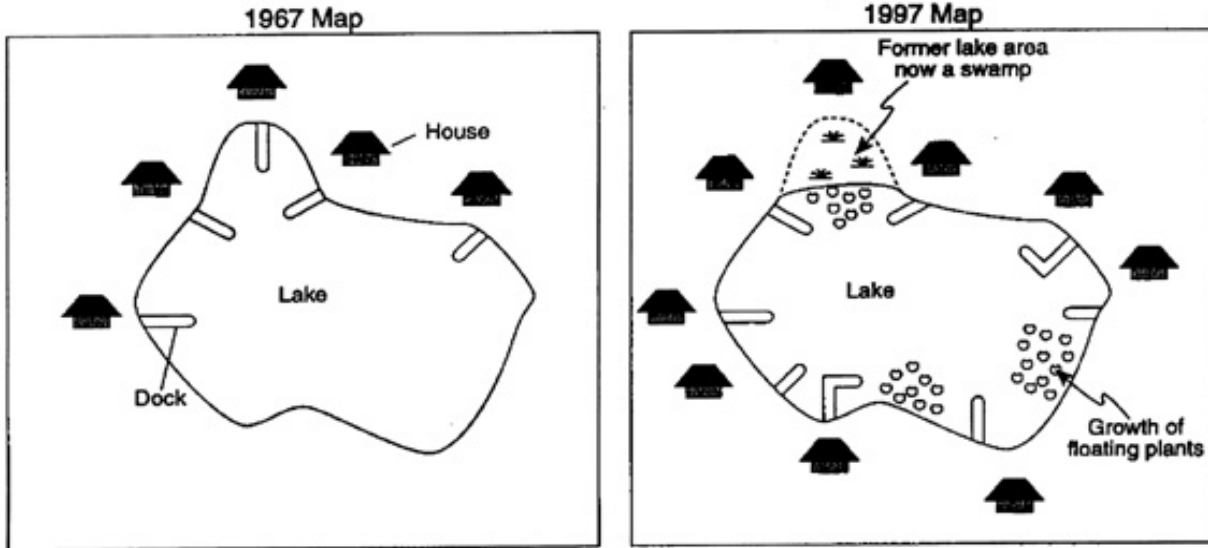
12. Which word best describes the movement of the rainwater through zone A?

- A. runoff
- B. infiltration
- C. precipitation
- D. saturation

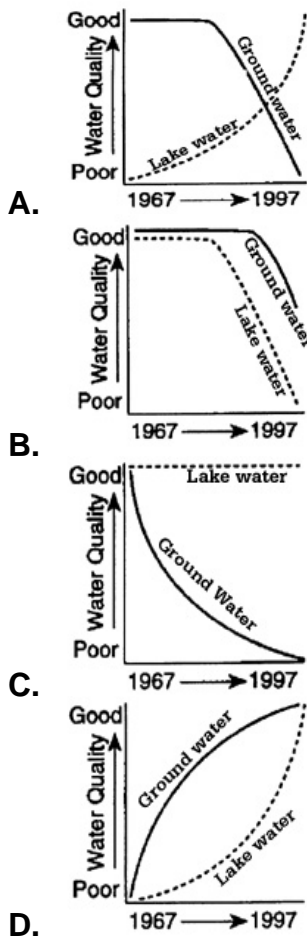
13. The two largest uses of freshwater in the United States are:

- A. homeowners and mining.
- B. power plants and irrigation.
- C. livestock and mining.
- D. homeowners and manufacturing industries.

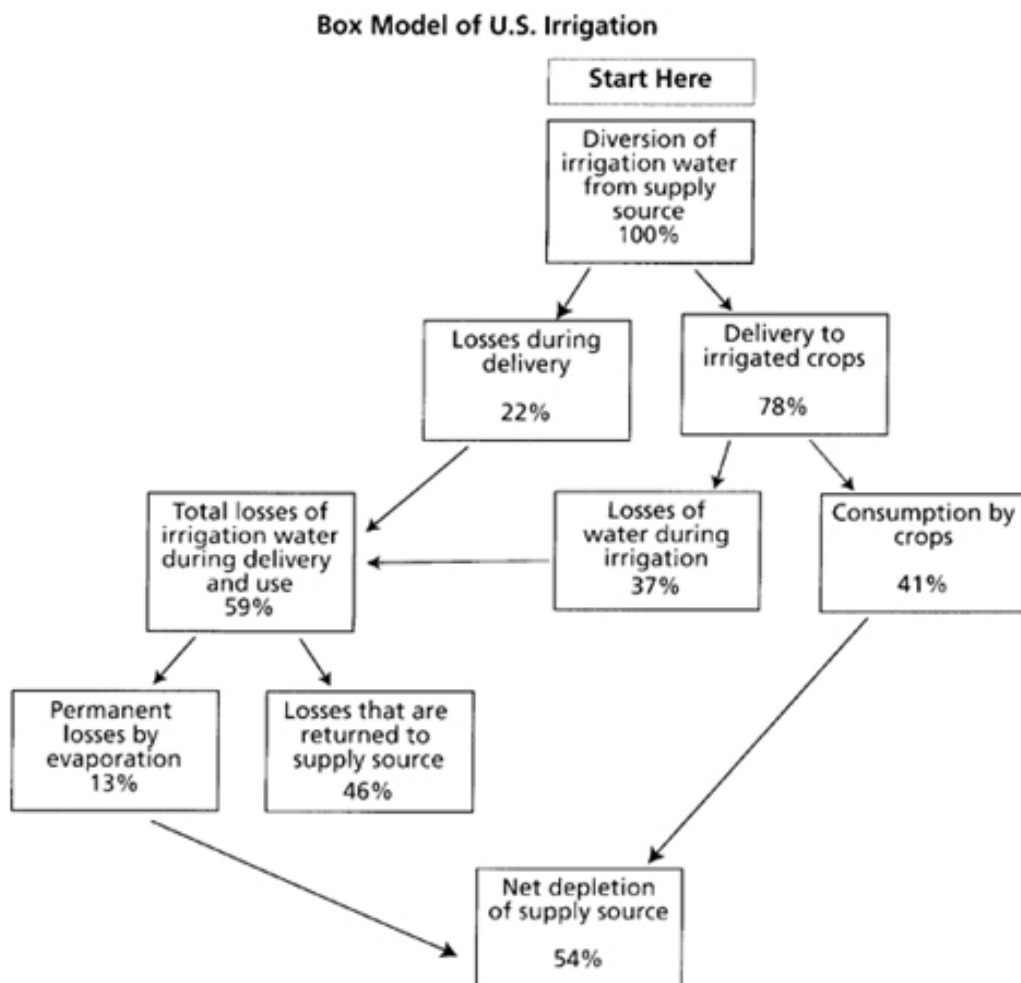
14. The maps below show changes occurring around a small New York State lake over a 30 year period.



Which graph best shows the probable changes in the quality of ground water and lake water in this region as indicated by the maps from 1967 to 1997?



The diagram below is a box diagram for a water budget.



15. What is the total percentage of water that is lost during the irrigation process?

- A. 54%
- B. 46%
- C. 78%
- D. 59%

16. Which hazard to ground water is possible when irrigation water filters through the soil?

- A. sink holes and other land collapsing problems can occur
- B. pollutants sprayed on the crops can move down to the ground water
- C. saltwater intrusion can occur
- D. significant evaporation can occur

17. Which of the following does not return water directly to the atmosphere from the ground?

- A. evaporation
- B. transpiration
- C. respiration
- D. runoff

18. People visit beaches every year and enjoy ocean and beach activities. Which of the following keeps the oceans filled with water?

- A. the oceans are the result of the melting polar caps
- B. the water cycle stopped long ago, so the oceans are the same as when the cycle stopped
- C. the cycle of evaporation and precipitation continues to replenish them
- D. the sediment deposits continue to displace the water, so the oceans appear to stay the same even though they are evaporating

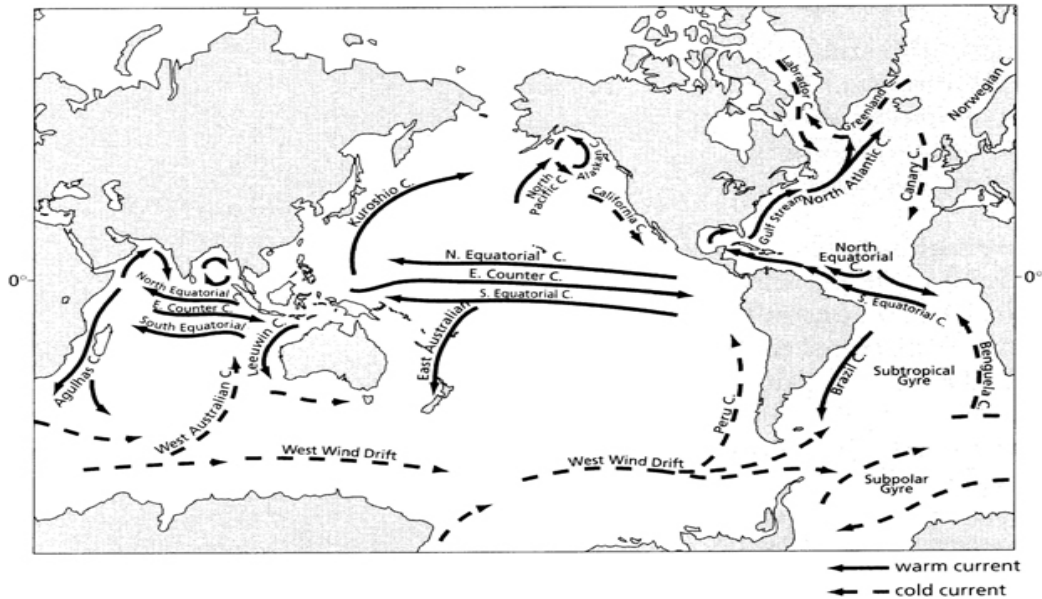
19. Which of the following statements about ocean circulation is true?

- A. surface water circulates opposite the direction from which the wind blows
- B. water with higher salinity sinks below water with lower salinity
- C. water that is warmed at the surface sinks, forcing cold water to rise from below
- D. the pattern of ocean circulation remains constant throughout the year

20. How does El Niño negatively impact the fishing industry in South America?

- A. by causing an increase in marine birds that eat the fish
- B. by causing an increase in ocean water salinity
- C. by causing a decrease in upwelling
- D. by causing a decrease in water temperatures

21. Imagine two towns at the same latitude (distance from the Equator), but on opposite coasts of North America. In which town would you expect to find a warmer climate?



- A. the town on the east coast
- B. the town on the west coast
- C. the town with the higher elevation
- D. neither, the climates would be the same

22. Transfer of heat occurs in the oceans. Which of the following statements is true?

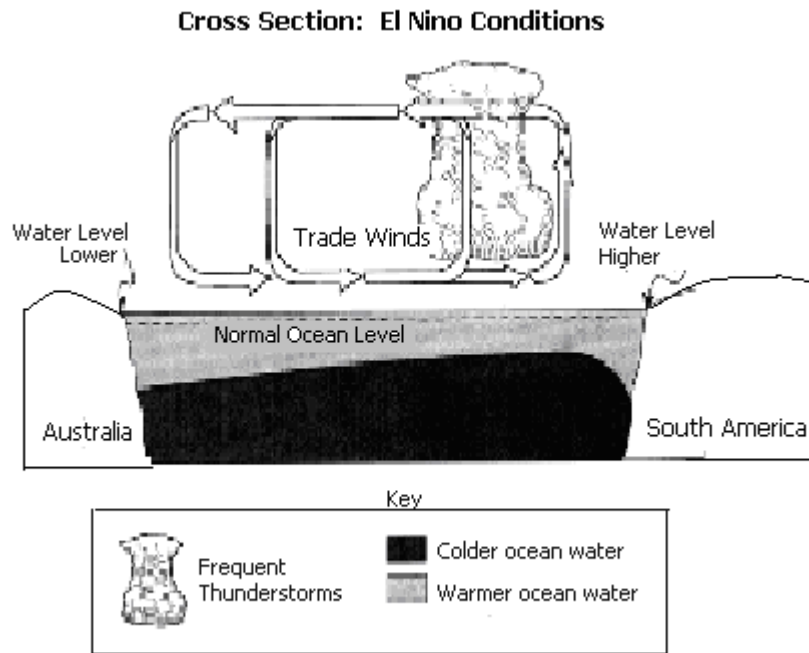
- A. heat transfers from the region near the equator to the polar regions
- B. heat transfers from the polar regions to the region near the equator
- C. heat does not transfer from one region to another because Earth is so big
- D. heat does transfer from one region to another because of the Coriolis Effect

23. As ocean water moves towards Earth's polar regions, the water becomes _____.

- A. less dense, warmer, and more salty
- B. less dense, colder, and more salty
- C. more dense, colder, and less salty
- D. more dense, colder, and more salty

The diagram below represents El Niño conditions in the Pacific Ocean and the atmosphere near the equator. Use the information and the diagram to answer question 24.

- Trade-wind directions are shown with arrows.
- The normal trade-wind pattern blows from east-to west.
- During El Niño conditions, the normal trade wind patterns are reversed.
- The normal sea surface temperatures off the coasts of Australia and South America are 28° C and 25° C respectively. During El Niño, the sea surface temperatures of South America become warmer.
- Cloud buildup indicates regions of frequent thunderstorm activity.
- The change from normal sea level is shown at the side of the diagram.



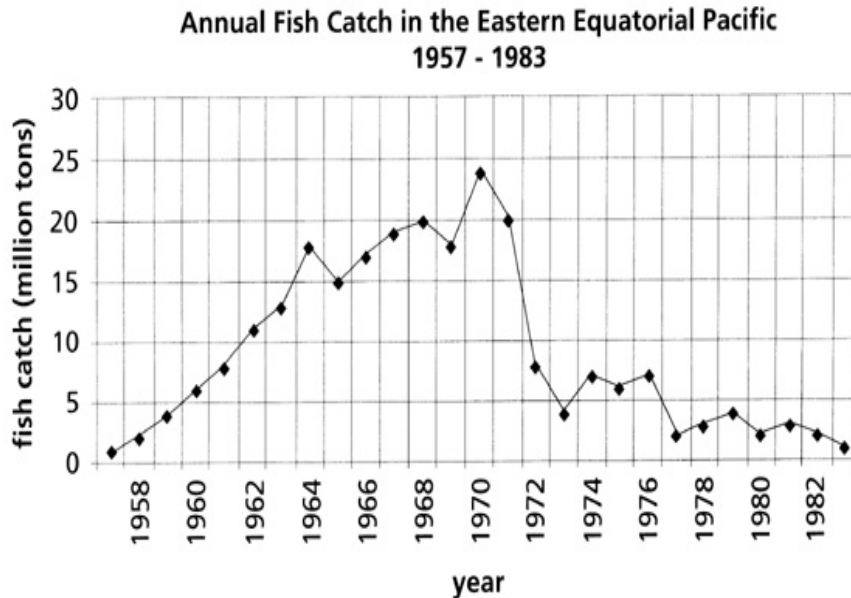
24. Which statement correctly describes sea surface temperatures along the South American coast and Pacific trade winds during El Niño conditions?

- the temperatures are warmer than normal, and Pacific trade winds are from the west
- the temperatures are cooler than normal, and Pacific trade winds are from the west
- the temperatures are cooler than normal, and Pacific trade winds are from the east
- the temperatures are warmer than normal, and the Pacific trade winds are from the east

25. During an El Niño event sea surface temperatures in the equatorial Pacific:

- become cooler.
- cannot be measured.
- become warmer.
- do not change.

26. The graph shows the annual fish catch in the eastern equatorial Pacific Ocean from the years 1957 to 1983.



During which year did an El Niño event most likely occur?

- A. 1976
- B. 1972
- C. 1968
- D. 1964

27. In which of the following ways does an El Niño event affect fish catches in the equatorial Pacific?

- A. the surface winds during El Niño drive fish to the north of their normal habitat
- B. El Niño reduces upwelling of nutrient-rich water that supports coastal fish populations
- C. fresh water from flooded rivers reduces salinity and reduces coastal fish populations
- D. severe weather associated with El Niño reduces the work season of fisherman

28. Which of the following shows a typical oceanic food chain?

- A. sea birds to phytoplankton to smaller fish to larger fish
- B. smaller fish to zooplankton to phytoplankton to larger fish
- C. zooplankton to phytoplankton to smaller fish to larger fish
- D. phytoplankton to zooplankton to smaller fish to larger fish

29. The density of ocean water is increased by:

- A. cooling and freezing out fresh-water ice.
- B. cooling and melting of fresh-water ice.
- C. heating and melting of fresh-water ice.
- D. heating and freezing out fresh-water ice.

30. What factors determine the path of surface ocean currents?

- A. wind and the seasons
- B. wind, the position of land masses, and the Coriolis Effect
- C. wind and water temperature
- D. the position of land masses and water density