

Surface Temperatures

Directions: Circle the letter of the best answer for the following questions.

1. Temperature is a measure of
 - a. the amount of potential energy in a material
 - b. the movement of particles in a material
 - c. the average kinetic energy of the molecules in a material.
 - d. none of the above
2. The instrument used to determine surface temperatures in this experiment is
 - a. barometer
 - b. Celsius thermometer
 - c. Fahrenheit thermometer
 - d. anemometer
3. Data tables are used to
 - a. predict the outcome of a scientific investigation
 - b. explain the procedure in an experiment
 - c. display data collected during an experiment
 - d. illustrate a hypothesis
4. Surface temperatures which are reflective
 - a. will be hotter than non-reflective surfaces
 - b. will be cooler than non-reflective surfaces
 - c. will be the same temperature as non-reflective surfaces
 - d. none of the above
5. Greater ground surface temperatures are usually found in which of the following materials?
 - a. concrete
 - b. bare soil
 - c. sawdust
 - d. asphalt
6. Architects should consider surface temperature's when designing construction for urban areas because
 - a. heat generated by surface materials is good for the environment
 - b. heat generated by surface materials affects air quality in urban settings
 - c. heat generated by surfaces has no effect on the environment
 - d. none of the above
7. Which surface would be best to keep classroom temperatures down in warm weather?
 - a. rock
 - b. concrete
 - c. landscape plants
 - d. landscape timbers

8. NASA's surface maps indicate hot areas as
- blue or green
 - yellow or green
 - red and yellow
 - red and green
9. If vegetation shades the ground surface,
- the temperature may be lower than if there were no shade over the surface material.
 - the temperature may be higher than if there were no shade over the surface material
 - it has no effect on the temperature of surface material.
 - the temperature will be the same as if there were no shade over the surface material.
10. If a student were asked to compare the seasonal surface temperature of the tennis court, his/her results would be more accurate if
- surface temperatures were taken three times three days apart and average the results.
 - three temperatures were taken and averaged for each of the three seasons during the school year.
 - one temperature was taken for each of the three seasons during the school year.
 - three readings were taken and averaged for three straight months.

Use the chart below to answer questions 11 - 13

Temperature of Common Surfaces					
Surface	Sept. 4 th	Sept 5 th	Sept 6 th	Sept 7 th	Sept 8 th
Sand	35°C	38 °C	30 °C	38° C	35 °C
Asphalt	65°C	68 °C	65 °C	62° C	68° C
Soil	28 °C	28 °C	27 °C	25° C	28° C
Concrete	32 °C	33 °C	31 °C	34° C	33° C
Wood chip	25 °C	24 °C	28° C	25 °C	22° C
Grass	22 °C	20 °C	19 °C	20° C	20 °C

11. Which surface area has the hottest temperature?
- soil
 - concrete
 - wood chip
 - grass
12. Which surface has the coolest temperature?
- soil
 - concrete
 - wood chip
 - grass
13. If surface temperature of asphalt is 80°Celsius and the surface temperature of concrete is 40°Celsius, the asphalt is probably higher because:
- dark colors absorb more heat
 - asphalt is porous
 - concrete has sand in it
 - none of the above

Answer key:

1- b

2- b

3- c

4- b

5- a

6- b

7- d

8- c

9- a

10- b

11. b

12. d

13. a