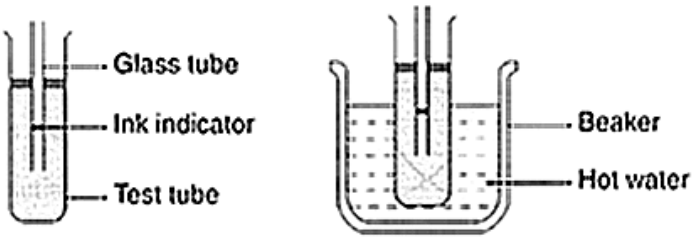
INTERNATIONL MATHEMATICS AND SCIENCE OLYMPIAD FOR PRIMARY SCHOOLS (IMSO) 2008

Science Contest in Taiwan

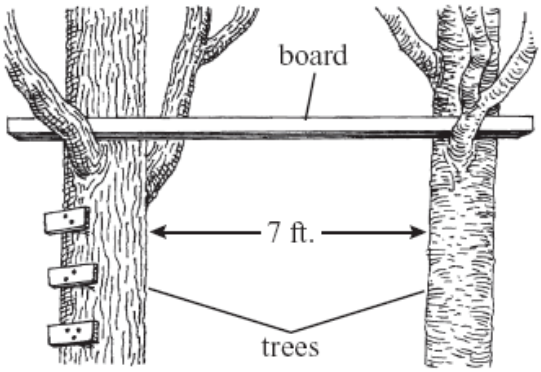
Directions (1-30): Each question is followed by four choices. Decide which choice best completes the statement or answers the question. On the separate answer sheet, record your answers in the spaces provided by writing the same *letter* as the answer you have chosen. Each correct answer is worth 4 **points**. Time limit: **60 minutes.**

1. In the water cycle, rain, snow, or sleet falling to the ground is a form of
   A. precipitation.
   B. condensation.
   C. evaporation.
   D. transpiration.

2. Bala conducted an experiment as shown below. When he placed the test-tube into the beaker of hot water, the ink indicator rose. This shows that _____.
   A. air contract when boiled
   B. air does not have definite volume
   C. air can be compressed
   D. air expands when heated.

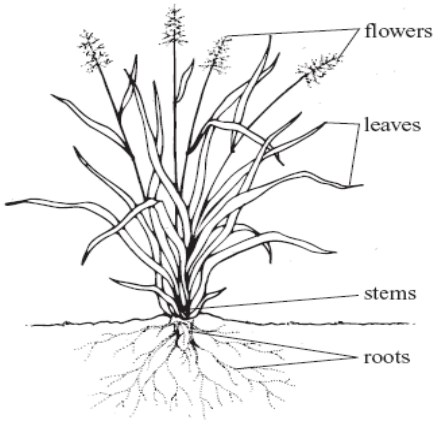


3. The picture below shows two trees and the beginning of a treehouse.
   A group of friends is building a treehouse.
   They are using straight wooden boards to build a platform between two trees.
   Which of the following is the most important characteristic of the board they have put between the two trees?



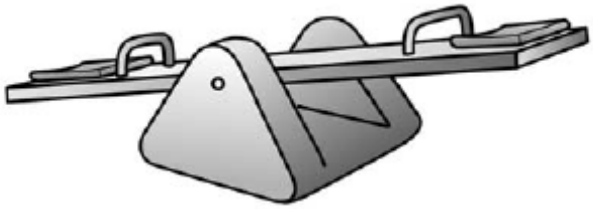
   A. color
   B. dryness
   C. hardness
   D. strength

4. A common grass is pictured below. Which labeled parts of the grass absorb most of the minerals needed by this plant?



A. flowers
B. leaves
C. stems
D. roots

5. The picture below shows a seesaw.
A seesaw on a playground is an example of what type of simple machine?

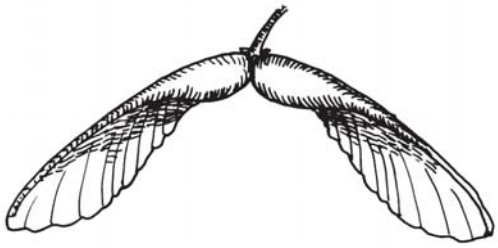


A. lever
B. screw
C. wedge
D. wheel and axle

6. All of the processes listed below cause changes in Earth's surface. Which of the following is the slowest to change Earth's surface?

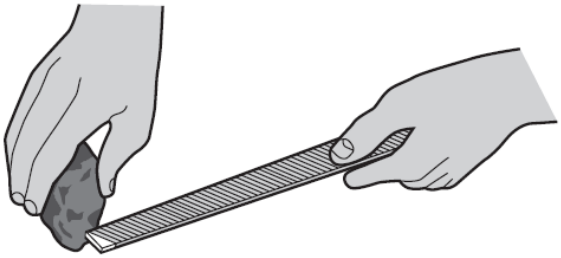
A. earthquake activity
B. landslide
C. weathering
D. volcanic eruption

7. Structures like the one shown below can be seen on maple trees at certain times of the year. What is the main function of this structure?



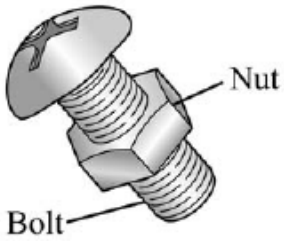
A. protection
B. pollination
C. competition
D. reproduction

8. The picture below shows a mineral sample being tested with a metal file.
Which property of a mineral is most likely tested in this way?



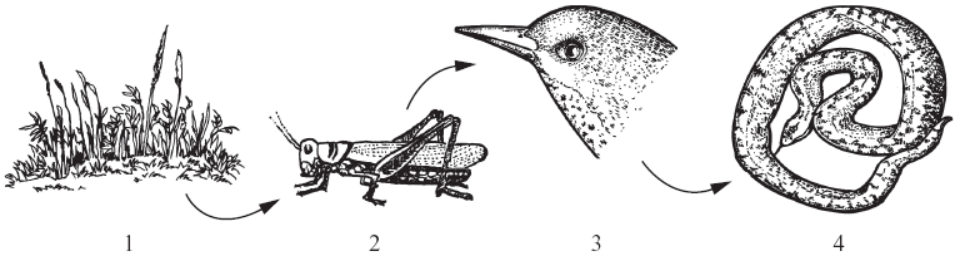
A. color
B. hardness
C. luster
D. streak

9. The picture below shows a nut and a bolt. Which of the following hand tools would most likely be used to tighten this nut and bolt?



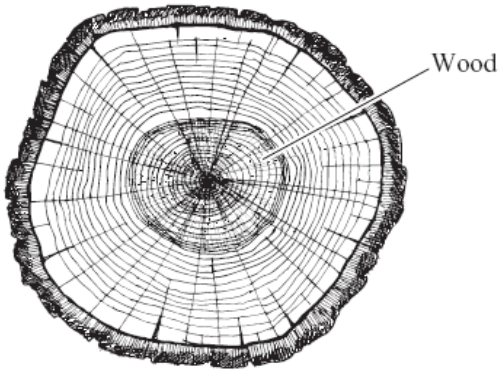
A. a wrench and a hammer
B. a hammer and a saw
C. a wrench and a screwdriver
D. a screwdriver and a saw

10. The diagram below shows a food chain. Which of the following is classified as a producer?



A. 1
B. 2
C. 3
D. 4

11. The diagram below shows a cross section of a tree trunk. What are the main functions of wood in a living tree?



A. support and reproduction
B. water transport and support
C. protection and reproduction
D. water transport and protection

12. Four rods of equal thickness but made of different metals were tested with equal amounts of weight to see which was most flexible. Which of the following is the best way to report the results of this experiment?

A. a list of each type of rod used
B. a sketch of each rod before testing
C. a table showing how much each rod weighed
D. a bar graph showing how much each rod bent

13. The picture shows a bird. From the shape of its beak and the length of its legs, this bird is best adapted for feeding on which of the following?

A. insects that feed on plants
B. small fish in shallow water
C. nuts from riverside trees and plants
D. birds in ground nests

14. Some types of trees are able to survive the heat of a forest fire. Which of the following characteristics would best help a tree survive a fire?

A. large leaves
B. shallow roots
C. thick bark
D. thin trunks

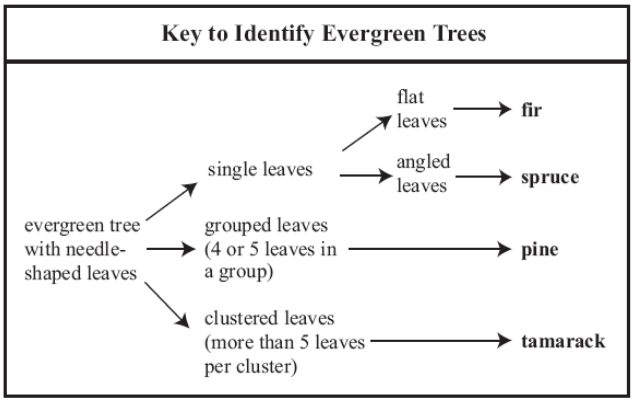
15. The Mohs scale for minerals is shown below. An unknown mineral can be scratched by topaz, but not by feldspar. According to the Mohs scale, which of the following best describes the hardness of the unknown mineral?

softest → **hardest**									
1	2	3	4	5	6	7	8	9	10
talc	gypsum	calcite	fluorite	apatite	feldspar	quartz	topaz	corundum	diamond

A. less than 5
B. more than 8
C. less than 8, but more than 6
D. more than 4, but less than 6

16. Delilah put a container of water in the freezer and left it there overnight. The next morning she saw that the water in the container had changed to ice.
Which of the following statements best explains why the water changed to ice?
A. The water gained energy.
B. The water absorbed light.
C. Mass was released from the water.
D. Heat was taken away from the water.

17. While on a walk, Samuel saw a tree he had not seen before. He used a key to help him identify the type of tree. A branch from the tree and the key he used are shown below. Based on the key, which type of tree did Samuel most likely see?



A. fir
B. spruce
C. pine
D. tamarack

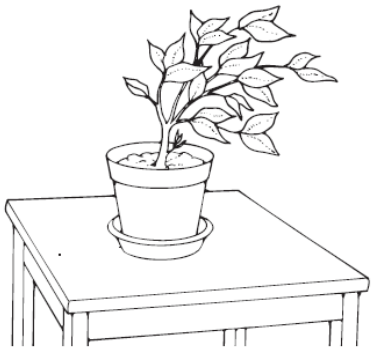
18. Which form of precipitation is most likely to cause damage when hitting the roof of a car?
A. hail
B. rain
C. sleet
D. snow

19. An incomplete food chain is shown below. Which of the following organisms would best complete the food chain?

grass seed → mouse → ? → hawk

A. rabbit
B. robin
C. snake
D. tree

20. The picture below shows a plant that is bending as it grows. What most likely caused the plant to bend this way?



A. fertilizer
B. gravity
C. heat
D. light

21. Which of the technology mentioned below imitates the sonar mechanism of bats?
A. domestic satellite for communication
B. submarine periscope
C. remote control system
D. air force army radar

22. A student places a sheet of black construction paper on her desk. What happens to most of the light that strikes the black construction paper?

A. The light is bent by the paper.

B. The light reflects off the paper.

C. The light is absorbed by the paper.

D. The light passes through the paper.

23.Which statement about sexual reproduction in flowering plants is correct?

A. It is conducted through bud formation.

B. It requires the presence of petals.

C. It can be accomplished by grafting.

D. It gives rise to genetically diverse offspring.

24. Stomata in the typical green leaves, _____ .

A. are covered by a waxy cuticle

B. control the opening of guard cells

C. close when water is being lost at too great a rate

D. are usually most abundant on the upper epidermis of a leaf

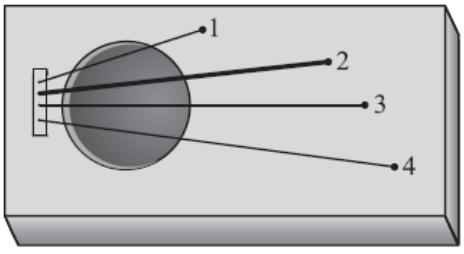
25. The picture below shows a musical instrument that Jamie made during science class. Each string on the instrument will produce a different sound when plucked. Which of the following identifies the string that will most likely produce the sound with the highest pitch?

A. string 1, because it is the shortest

B. string 2, because it is the thickest

C. string 3, because it is centered over the hole

D. string 4, because it is the longest



26. Figure below shows water levels in a measuring glass before and after a piece of wood of 100 g is put into the water.

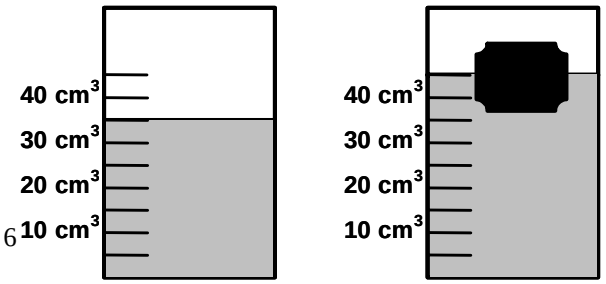
Calculate the density of wood, if only half of the wood sinks into the water?

A. 35 g/cm^3

B. 40 g/cm^3

C. 5 g/cm^3

D. 305 g/cm^3



27. Which of the following is an example of a physical change but not a chemical change?

A. A log gives off heat and light as it burns.
B. A tree stores energy from the Sun in its fruit.
C. A penny lost in the grass slowly changes color.
D. A water pipe freezes and cracks on a cold night.

28. A car is travellling from city A at 08:00 AM to city B with a distance of 500 km. If the speed of the car is 60 km/hour, what time will car arrive at city B.

A. 4:20PM
B. 4:33PM
C. 8:20PM
D. 8:33PM

29. Which of the following is the primary advantage of sexual reproduction when compared to asexual reproduction?

A. There is a greater number of offspring.
B. There is more food available to offspring.
C. There is greater genetic variety in offspring.
D. There is a longer development time for offspring.

30. Millions of butterflies travel in a very long distance, from North Africa to Europe. They fly amazingly, about 2,000 meters high, and pass across an ocean and the Alpen hills. The movement of butterfly population is called

A. transmigration
B. migration
C. mitigation
D. immigration