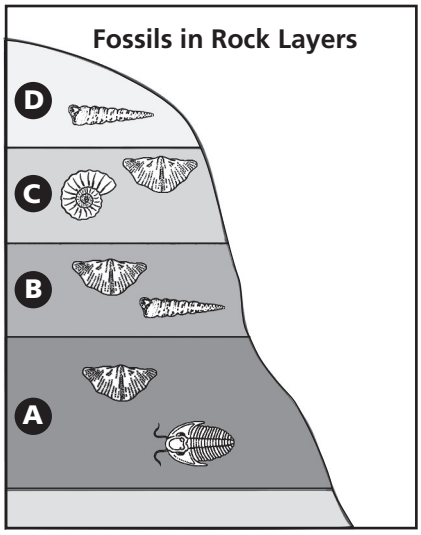
Name _____ Date_____ Class_____

SCREENING TEST 2

Directions: *Use the diagram below to answer question 1.*



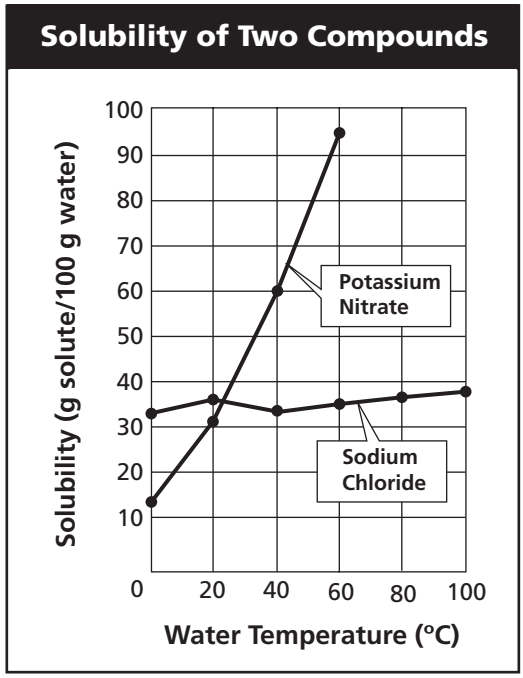
1. The diagram shows a sketch of fossils, or preserved remains, found at different rock layers at a particular location. Which of the following statements is a qualitative observation based on this diagram?

A The four types of fossils are classified as different kinds of animals.
B The fossils in layer A are ancestors of the fossils in other layers.
C The bottom fossil in layer A has a body that is made up of segments.
D Scientists can use this diagram to help learn how old each fossil is.

2. No matter how a corn seed is positioned in the soil, the roots always grow downward, and the stems always grow upward. Which of the following is the most logical inference for this observation?

A The seeds are responding to the touch of the surrounding soil.
B The seeds are responding to the chemicals in the leaves and flowers.
C The seeds are responding to the sunlight.
D The seeds are responding to gravity.

Directions: *Use the graph below to answer question 3.*



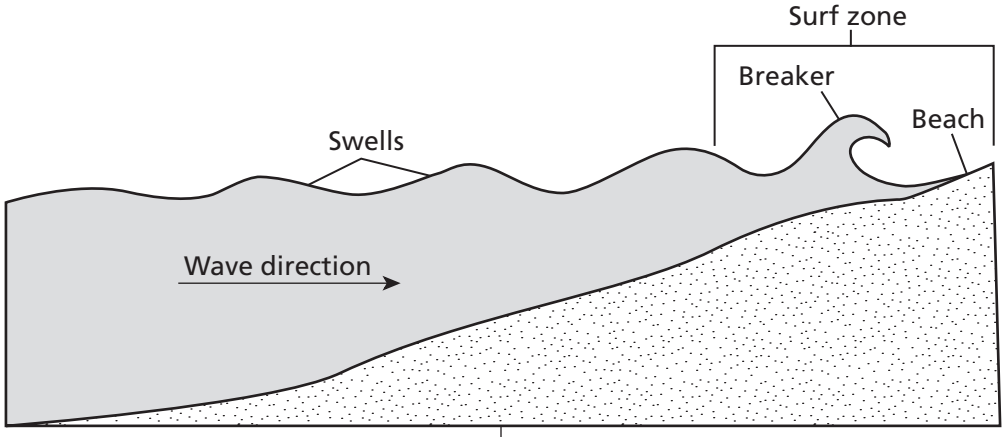
3. The graph shows information about the solubility of two compounds, potassium nitrate and sodium chloride. What does the graph show?

A All substances dissolve in water, but the rates of dissolving are different.
B At 50°C, more grams of potassium nitrate will dissolve in water than of sodium chloride.
C At 50°C, more grams of sodium chloride will dissolve in water than of potassium nitrate.
D The cooler the water, the greater the mass of the substance that dissolves.

GO ON

SCREENING TEST 2 *(continued)*

Directions: *Use the diagram below to answer question 4.*



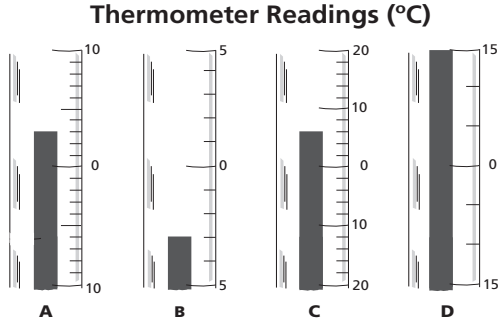
4. The diagram shows a two-dimensional model of ocean waves. What would indicate whether this model is drawn to scale?

A whether it is the same size as the real objects it shows
B whether it contains measurements in the metric system
C whether its measurements are in the same proportions as the actual objects
D whether it is smaller or larger than the real objects

5. Suppose you heard a person make this prediction: "There will be a major rain storm next weekend." What would be the best reason for saying that the prediction was scientific?

A The person made the prediction during a televised weather report.
B The person making the prediction gave numerous details about winds and temperatures.
C The person based the prediction on a body of evidence.
D The prediction is an inference, not a fact.

Directions: *Use the diagram below to answer question 6.*



6. Which thermometer in the diagram correctly shows a reading of 3°C?

A Thermometer A
B Thermometer B
C Thermometer C
D Thermometer D

GO ON

SCREENING TEST 2 *(continued)*

Directions: *Use the table below to answer questions 7 and 8.*

Title?	
Temperature (°C)	**Speed of Sound (m/s)**
0	331
15	340
20	344
30	349
40	354
50	360
100	386

7. The table shows measurements made in air. It has no title. Which of the following choices would be the most useful title for this table?

A Speed of Sound in Different Materials
B Speed of Sound in Air
C Changing Air Temperatures
D Differences in Sound Waves

8. Examine the two columns of data about temperature and speed of sound in air. Which of the following is the most accurate prediction that can be made based on that data?

A Below 0°C, the speed of sound in air will be constant.
B At 30°C, the speed of sound will be about 350 m/s.
C At 120°C, the speed of sound will be about 410 m/s.
D The lower the air temperature, the faster the speed of sound will be.

9. Suppose your class is creating your own system for classifying rocks. You plan to share the classification system with students in other parts of the world and compare rocks from different locations. What should be the most important guideline as you create the new system?

A Include all the known scientific and technical names for rocks.
B Create a system that will work for all kinds of rocks.
C Be sure the system makes it easy to store the rocks you collect.
D Focus on the rocks that are frequently found in your community.

10. The Venus flytrap is a carnivorous plant that catches and digests insects and spiders. Its leaves are folded along the midrib and tiny hairs grow near the midrib. You observe a fly landing on a leaf and the leaf "jaws" snapping shut, trapping the fly. Which inference can logically be made from your observation?

A The leaf is responding to chemicals on the fly's feet.
B The leaf is responding to the fly's odor.
C The leaf is responding to the shadow cast by the fly.
D The leaf is responding to the touch of the fly's feet.

GO ON

SCREENING TEST 2 *(continued)*

11. A lab group is choosing a scientific question to research on the Internet. The group chooses to research this question: "What kind of sounds make the best music?" Which of the following statements most correctly describes the group's question?

A The question is scientific because it can be answered by gathering evidence about the natural world.
B The question is scientific because the study of sound is a scientific topic.
C The question is not scientific because it is too broad.
D The question is not scientific because it involves personal opinions.

12. Rocks at Earth's surface can be broken down by various processes. Which of the following describes a testable hypothesis for investigating this topic?

A Rocks at Earth's surface can be broken down by moving water.
B New rock can be formed when the heat of Earth's interior melts older rocks inside Earth.
C Important historical stone monuments should be protected from weathering.
D Ancient rocks were broken down by so many different processes that we cannot carry out investigations of this topic.

13. Suppose you are planning an experiment to determine which disinfectant is best for killing bacteria often found in kitchens. Which of the following would be the most logical responding variable for your experiment?

A number of bacteria that survive after using the detergent
B amount of detergent
C type of detergent
D source of bacteria

Directions: *Use the information below to answer question 14.*

Identifying an Acid

To find out whether an unknown liquid is an acid, place a drop of the liquid on blue litmus paper. If the litmus paper turns red, the unknown liquid is an acid.

14. Which statement describes whether the directions above provide an operational definition of an acid?

A The directions are not an operational definition because they do not control the necessary variables.
B The directions are not an operational definition because they are not clear enough for another person to follow.
C The directions do provide an operational definition because they clearly tell a researcher how to identify an acid.
D The directions do provide an operational definition because they avoid opinions and values.

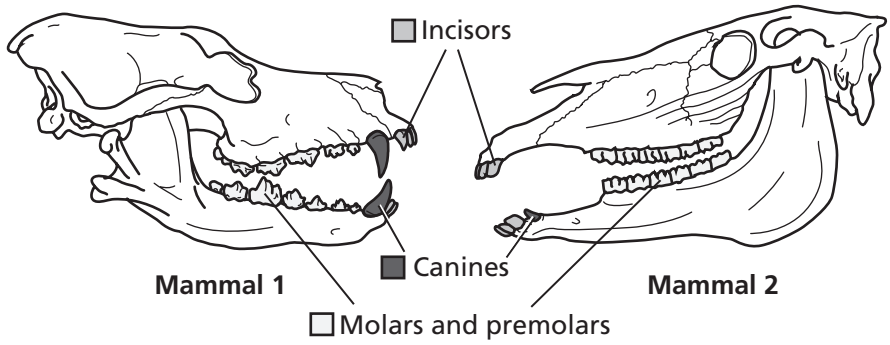
15. In a process called weathering, water can break down rock. Suppose you want to do a controlled experiment on this topic. Which statement below best describes how you should start?

A Collect as many different kinds of rock samples as you can.
B Create a data table and a line graph that will correspond to the data table.
C Determine what conclusion you want to draw, and then figure out how to get your data to match that conclusion.
D Determine what question you want to investigate, and write a hypothesis based on that question.

GO ON

SCREENING TEST 2 *(continued)*

Directions: *Use the diagram below to answer questions 16 and 17.*



16. The figure shows sketches a researcher made of two mammal skulls. The sketches show the teeth on one side of the jaw. Which phrase describes the most visible difference in the two jaws?

A the number of teeth
B the shape of the teeth
C the names of the teeth
D the food the animals eat

17. Plants serve as food for some mammals. These animals often have flat teeth that enable them to grind down the tough plant parts. Which animal(s) in the figure above would be able to survive by eating plant materials?

A Mammal 1
B Mammal 2
C neither animal
D both animals

---

18. You and your lab group are designing an experiment to find the typical pulse rate for students in your grade. Which of the following procedures would be best for you to follow?

A Study the pulse rates of each student under the same set of conditions, such as after 30 minutes of rest and after 3 minutes of exercise.
B Also study the pulse rates of students in higher and lower grades to be sure your data are accurate.
C Have some students rest before their pulse is measured and others do exercise so that you get a true variety of numbers.
D Research what the typical pulse rate should be, then find out how many students have that pulse rate.

19. A lab group is investigating this question: "When wind-driven sand particles strike rock, does the size of the sand particles affect how quickly rock is broken down?" Which of the following would be the group's manipulated variable?

A time it takes to break down a given amount of rock
B the mass of the sand used
C the size of the sand particles
D the process used to create artificial wind

GO ON

SCREENING TEST 2 *(continued)*

20. Benito had $61.65. He earned $31.50 for raking leaves from his neighbor's yard. How much money does Benito have now?

A $92.15
B $92.85
C $93.15
D $93.85

21. Kim has 9 boxes filled with paperback books. Each box holds 68 books. How many books does she have in all?

A 77 books
B 448 books
C 608 books
D 612 books

22. The perimeter P of a square may be found using the formula $P = 4s$, where s is the length of each side. The area of a square may be found using the formula $A = s^2$.

A square has an area of 64 square meters. What is the perimeter of the square?

A 16 meters
B 32 meters
C 64 meters
D 128 meters

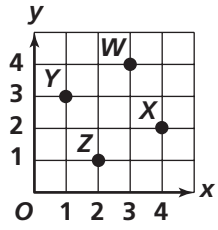
23. A gardener planted 8 petunias, 16 lilies, 12 irises, and 24 pansies around the perimeter of a swimming pool. What is the ratio of the number of petunias to the number of pansies in the garden?

A 1 to 3
B 4 to 9
C 5 to 12
D 3 to 4

24. There are 20 marbles in a box: 6 blue marbles, 4 red marbles, 7 yellow marbles, and 3 black marbles. If you reach into the box and choose one marble, which color of marble are you most likely to pick?

A blue
B red
C black
D yellow

25. Which point represents the ordered pair (1,3)?



A W
B X
C Y
D Z