

THE UNIVERSITY OF THE STATE OF NEW YORK

GRADE 4

ELEMENTARY-LEVEL SCIENCE TEST

WRITTEN TEST

SPRING 2006

Student Name _____

School Name _____

Print your name and the name of your school on the lines above.

The test has two parts. Parts I and II are in this test booklet.

Part I contains 30 multiple-choice questions. Record your answers to these questions on the separate answer sheet. Use only a No. 2 pencil on your answer sheet.

Part II consists of 14 open-ended questions. Write your answers to Part II in this test booklet.

You will have as much time as you need to answer the questions.

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THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
ALBANY, NEW YORK 12234

DIRECTIONS

There are 30 questions on Part I of this test. Each question is followed by three or four choices, labeled A–D. Read each question carefully. Decide which choice is the best answer. On the separate answer sheet, mark your answer in the row of circles for each question by filling in the circle that has the same letter as the answer you have chosen. Use a No. 2 pencil to mark the answer sheet.

Read Sample Question **S-1** below.

S-1 Frozen water is called

- A fog
- B ice
- C steam
- D vapor

The correct answer is **ice**, which is next to letter **B**. On your answer sheet, look at the box showing the row of answer circles for Sample Question **S-1**. See how the circle for letter **B** has been filled in.

Now do Sample Question **S-2**. Mark your answer on the answer sheet in the box showing the row of answer circles for Sample Question **S-2**.

S-2 Which animal has wings?

- A bird
- B frog
- C mouse
- D rabbit

The correct answer is **bird**, which is next to letter **A**. On your answer sheet, you should have filled in circle **A**.

Answer all 30 questions on Part I of this test. Fill in only one circle for each question. Be sure to erase completely any answer you want to change. You may not know the answers to some of the questions, but do the best you can on each one.

When you have finished Part I, go on to Part II. Answer all of the questions in Part II in the space for each question.

Part I

Base your answers to questions 1 and 2 on the table below and on your knowledge of science. The table shows the weather conditions in a city at noon for five days in March.

Weather Conditions at Noon for Five Days in March

Day	Temperature	Sky Condition	Snow
Monday	31°F	partly cloudy	none
Tuesday	31°F	cloudy	$\frac{1}{2}$ inch
Wednesday	29°F	mostly cloudy	2 inches
Thursday	18°F	cloudy	3 inches
Friday	32°F	clear	none

- 1 Which statement describes what happened to the temperature at noon from Tuesday through Friday?
 - A It increased, only.
 - B It decreased, only.
 - C It increased then decreased.
 - D It decreased then increased.

- 2 What was the sky condition on the day with the most snow?
 - A clear
 - B cloudy
 - C partly cloudy
 - D mostly cloudy

3 Sleet and hail are forms of

- A clouds
- B energy
- C evaporation
- D precipitation

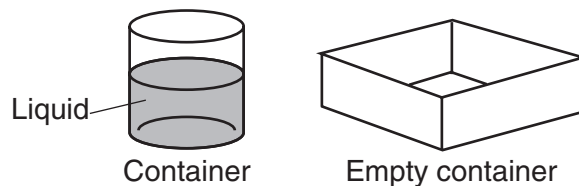
4 The movement of soil by wind or water is called

- A condensation
- B evaporation
- C erosion
- D friction

5 Which tool is used to measure the volume of a liquid?

- A balance
- B ruler
- C thermometer
- D graduated cylinder

6 The diagram below shows liquid in a container and an empty container.

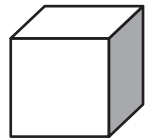


All the liquid is poured into the empty container. Which property of the liquid changes?

- A color
- B odor
- C shape
- D volume

- 7 Which tool should a student use to compare the masses of two small rocks?
- A balance
 - B hand lens
 - C ruler
 - D measuring cup

- 8 The diagram below shows a block of wood.



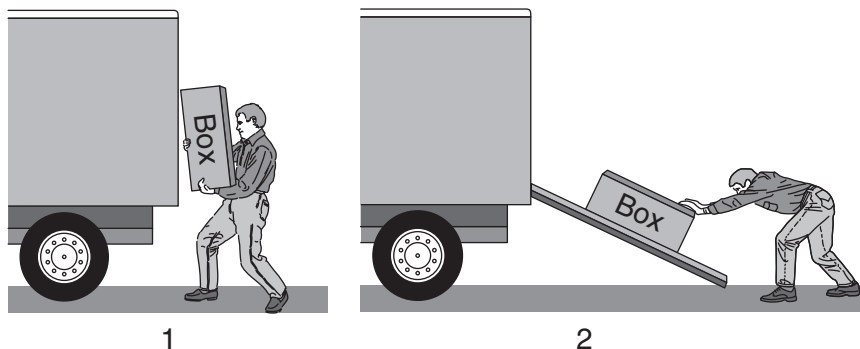
Block of wood

The block is a solid because it has a definite

- A color
 - B odor
 - C shape
 - D texture
- 9 Which object is the best conductor of electricity?
- A metal fork
 - B rubber boot
 - C plastic spoon
 - D wooden bat
- 10 Which is the best example of evaporation?
- A raindrops freezing
 - B an ice cube melting
 - C a puddle drying in the sun
 - D a sponge soaking up water

Base your answers to questions 11 through 13 on the information and diagrams below.

In diagram 1, a man is lifting a heavy box into a truck. In diagram 2, the same man is using a ramp to move the same box into the same truck.

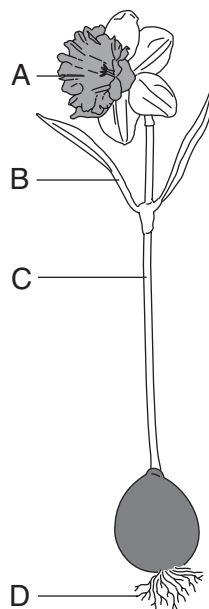


- 11** Which type of simple machine is the ramp in diagram 2?
- A pulley
 - B inclined plane
 - C lever
 - D wheel
- 12** Why is it easier for the man to move the same box using the ramp?
- A He uses less force.
 - B He moves the box a shorter distance.
 - C The box is lighter.
 - D The truck is lower.
- 13** It would be easier to move the box if the surface of the ramp was smoother because there would be less
- A friction
 - B gravity
 - C mass
 - D volume

14 A marble is dropped in a glass of water. Which force pulls the marble to the bottom of the glass?

- A electricity
- B friction
- C gravity
- D magnetism

15 Which letter in the diagram below points to the plant structure that takes in water and nutrients?

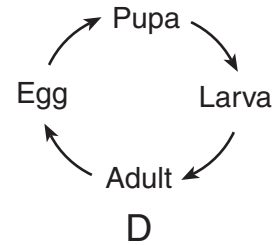
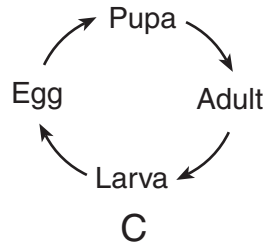
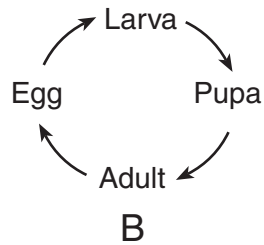
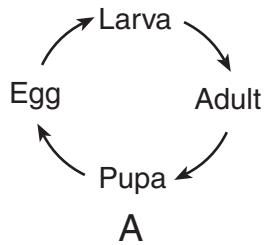


- A *A*
- B *B*
- C *C*
- D *D*

16 Which characteristic helps a fox find food?

- A sense of smell
- B thick fur
- C long tail
- D pointed teeth

17 Which diagram correctly shows the life cycle of some insects?



18 Which process causes the leaves of a plant to become larger?

- A repair
- B growth
- C decomposition
- D germination

19 A turtle eating worms is an example of

- A breathing
- B reproducing
- C eliminating waste
- D taking in nutrients

20 The main function of a duck's webbed feet is to help the duck

- A make noise
- B protect itself
- C swim in water
- D find a mate

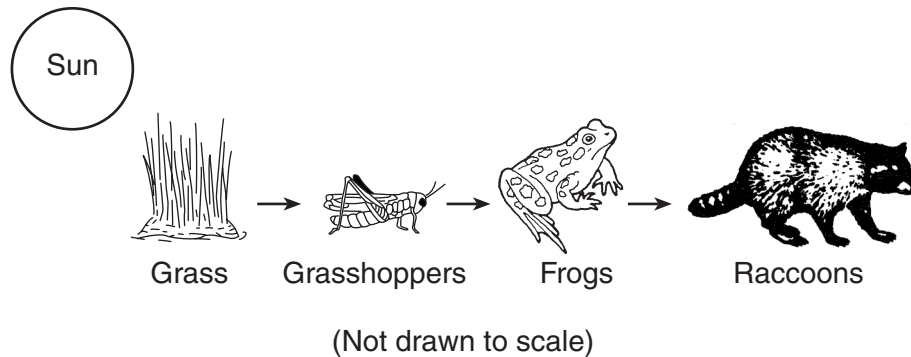
21 One way animals usually respond to a sudden drop in temperature is by

- A sweating
- B shivering
- C blinking
- D salivating

22 A student puts two identical plants in the same type and amount of soil. She gives them the same amount of water. She puts one of these plants near a sunny window and the other in a dark room. This experiment tests how the plants respond to

- A light
- B air
- C water
- D soil

Base your answers to questions 23 through 26 on the diagram of a food chain below and on your knowledge of science.



23 The energy that all organisms need to survive comes from

- A the air
- B the Sun
- C water
- D grass

24 Which organism is a producer?

- A grasshopper
- B raccoon
- C grass
- D frog

25 The raccoon in this food chain represents a

- A prey
- B predator
- C decomposer
- D producer

Note that question 26 has only three choices.

26 If all the frogs died, the raccoon population would most likely

- A decrease
- B increase
- C remain the same

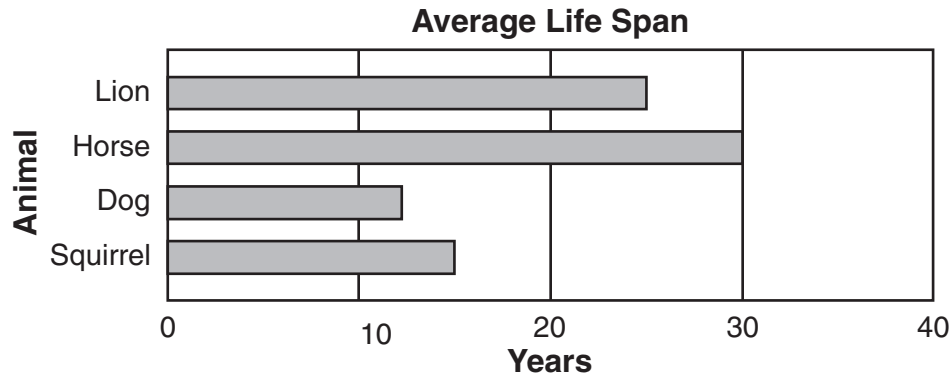
27 Which human activity most often has a harmful effect on the environment?

- A breathing
- B growing
- C planting
- D polluting

28 In New York State, the shortest period of daylight occurs during which month?

- A December
- B June
- C March
- D September

Base your answers to questions 29 and 30 on the bar graph below, which shows the average life span of four animals.



- 29** Which statement is supported by the data in the bar graph?
- A The life span of a dog is longer than the life span of a squirrel.
 - B The life span of a lion is longer than the life span of a horse.
 - C The life span of a squirrel is longer than the life span of a lion.
 - D The life span of a horse is longer than the life span of a dog.
- 30** The life span of an animal is defined as the
- A changes that occur as the animal develops
 - B length of time from the animal's birth to its death
 - C process by which the animal grows in size
 - D transfer of specific traits to the animal's offspring

GO RIGHT ON TO PART II ➡

Part II

Directions (31–44): Record your answers in the space provided below each question.

Base your answers to questions 31 through 34 on the information below and on your knowledge of science.

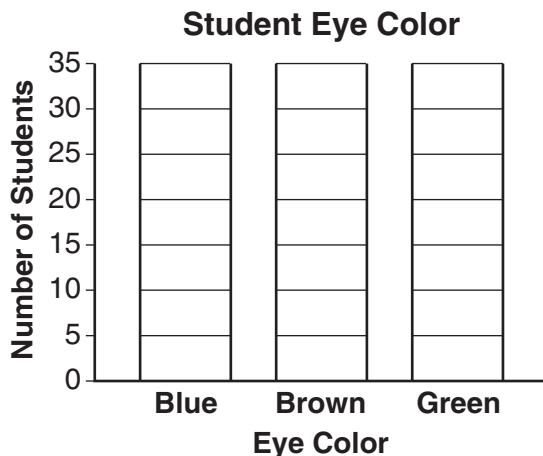
A group of fourth grade students recorded their eye color. The tallies in the data table below show their results. The symbol *###* equals five.

Data Table

Eye Color	Number of Students
blue	<i>###</i> <i>###</i> <i>###</i>
brown	<i>###</i> <i>###</i> <i>###</i> <i>###</i> <i>###</i> <i>###</i>
green	<i>###</i> <i>###</i>

31 Which eye color was most common in this group of students? [1]

32 Use the results in the data table to complete the bar graph below. [1]



33 Identify **one** trait, other than eye color, that children can inherit from their parents. [1]

34 Identify **one** characteristic that children learn and do **not** inherit from their parents. [1]

35 A student hung three wet shirts in the sun to dry, shirts *A*, *B*, and *C*. The student predicted that shirt *B* would dry the fastest. The data table below shows the results.

Drying Time of Shirts

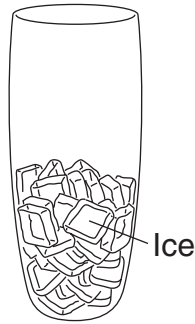
Shirt	Drying Time (minutes)
A	25
B	32
C	40

Do the results agree with the prediction that shirt *B* would dry fastest?

Circle one: Yes No

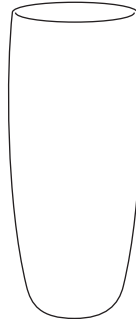
Use the data in the table to explain your answer. [1]

Base your answers to questions 36 and 37 on the diagram below and on your knowledge of science. The diagram shows a glass containing some ice.



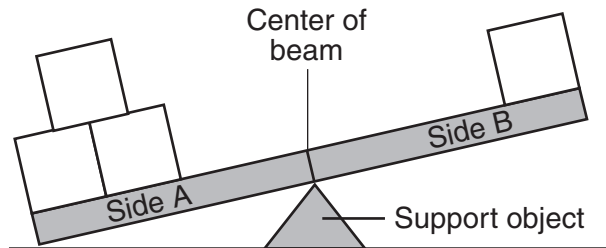
36 The ice in the glass represents what state of matter? [1]

37 In the glass below, draw how the contents of the glass would look after sitting in a warm kitchen for 45 minutes. Label the contents of the glass. [2]



Base your answers to questions 38 and 39 on the information and diagram below.

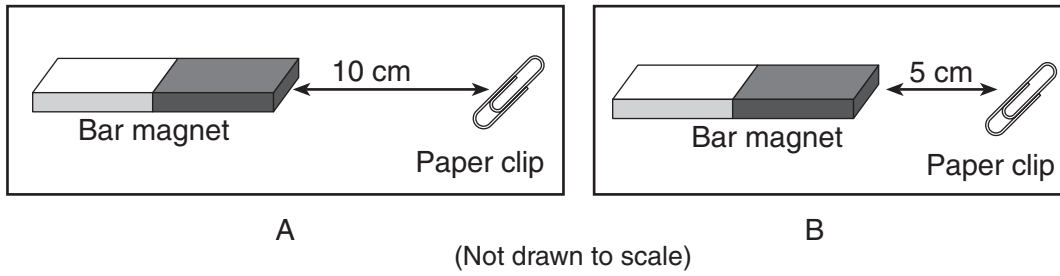
The diagram shows four blocks on a balance beam. All four blocks have the same mass.



38 Give **one** observation that shows side *A* has more mass on it. [1]

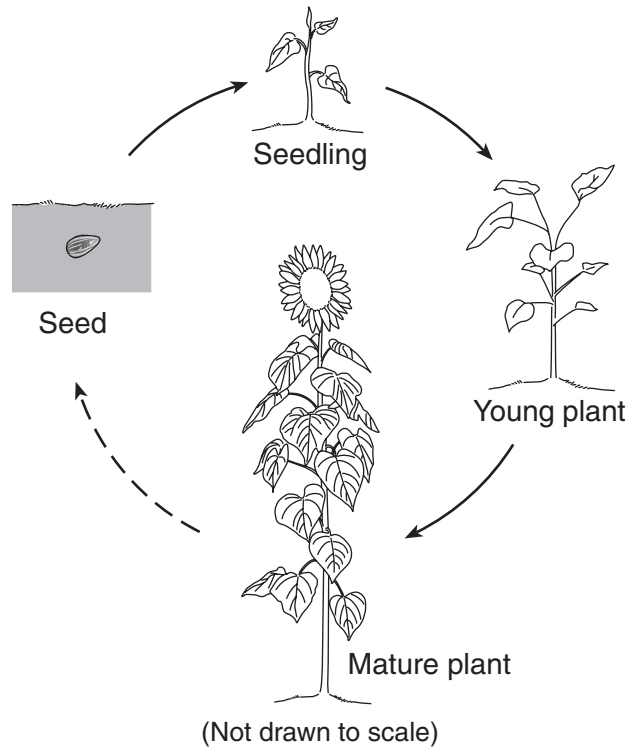
39 How can the four blocks shown be rearranged **on the beam** so side *A* and side *B* will balance? [1]

40 Diagrams *A* and *B* below show the same bar magnet attracting the same paper clip from two different distances.



Explain why the bar magnet attracts the paper clip with more force in diagram *B* than in diagram *A*. [1]

Base your answers to questions 41 through 43 on the diagram below, which shows four stages in the life cycle of a green plant.



41 Germination happens between which two stages? [1]

_____ and _____

42 In which stage are seeds produced? [1]

43 List **two** things green plants need to grow and thrive. [1]

(1) _____

(2) _____

44 Monarch butterflies migrate from New York State at a certain time of the year. Explain how migration helps butterflies survive. [1]

For Teacher Use Only
Part II Credit

Question	Maximum Credit	Credit Allowed
31	1	
32	1	
33	1	
34	1	
35	1	
36	1	
37	2	
38	1	
39	1	
40	1	
41	1	
42	1	
43	1	
44	1	
Total	15	