VIRGINIA STANDARDS OF LEARNING

Spring 2005 Released Test

GRADE 5
SCIENCE

CORE 1

Property of the Virginia Department of Education

Copyright © 2006 by the Commonwealth of Virginia Department of Education, James Monroe Building, 101 N. 14th Street, Richmond, Virginia, 23219. All rights reserved. Except as permitted by law, this material may not be reproduced or used in any form or by any means electronic or mechanical, including photocopying or recording, or by any information storage and retrieval system, without written permission from the copyright owner. Please contact the Commonwealth of Virginia Department of Education at (804) 225-2102, Division of Assessment and Reporting, to request written permission.

Printed in the United States of America

DIRECTIONS
Read each question carefully and choose the best answer. Then mark the space in the answer booklet for the answer you have chosen.

SAMPLE

When the Earth is seen from outer space, it looks mainly blue. This is because most of the Earth is covered with —

A ice
B mountains
C oceans
D deserts

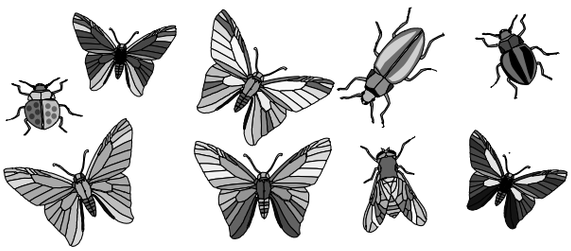
1 If the Earth moved farther away from the sun, which of these would probably happen?

A There would be no moon.
B There would be more solar eclipses.
C There would be colder weather.
D There would be more seasons.

2 Which of the following would reflect rather than refract light?

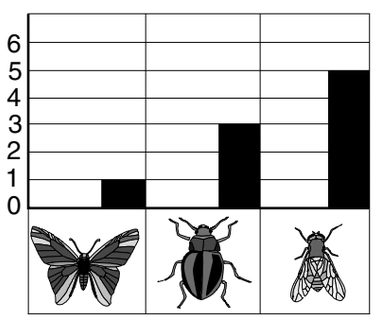
F Magnifying glass
G Mirror
H Prism
J Lens

3

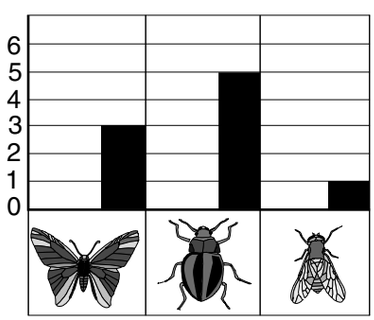


The picture shows some insects Dana saw while she was out walking. Which graph best represents what Dana saw?

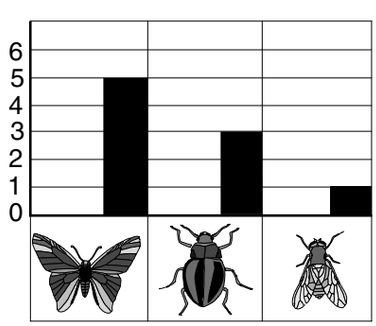
A



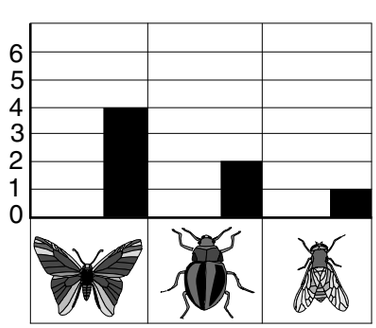
B



C



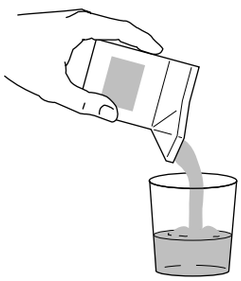
D



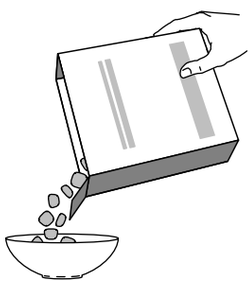
GO ON

4 Which picture shows a liquid at room temperature?

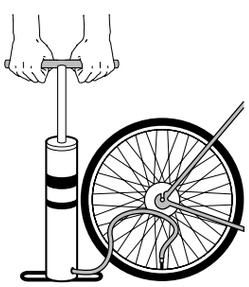
F



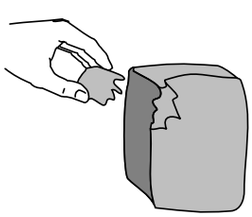
G



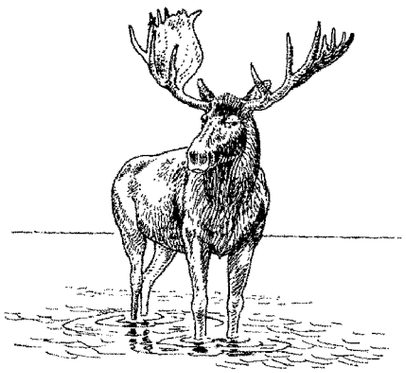
H



J



5



Based on the picture above, which of these is a conclusion rather than an observation?

A This animal has hair.
B This animal is standing.
C This animal has four legs.
D This animal is a mammal.

6 All of these are consumers EXCEPT a —

F butterfly
G wasp
H bullfrog
J tree

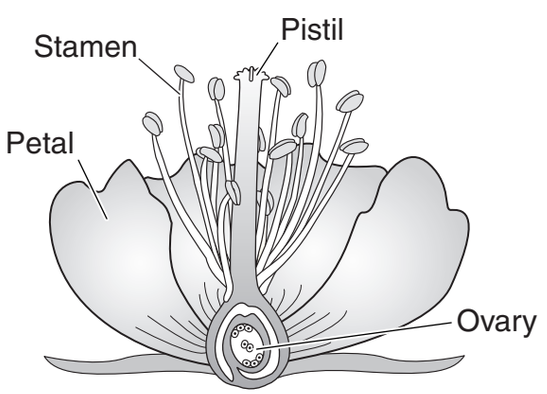
7 Which of the following measurements is *most likely* the mass of a pencil?

A 10 centimeters
B 17 kilograms
C 17 millimeters
D 10 grams

8 Fossil fuels are usually found —

F in the atmosphere
G below ground
H at the surface of the ocean
J on mountain peaks

9



Pollen is produced in the —

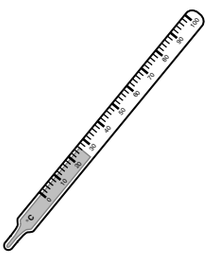
A ovary
B pistil
C petal
D stamen

10 Which part of a dinosaur is *least* likely to be found as a fossil?

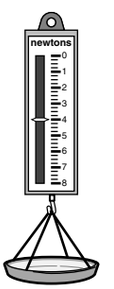
F Bones
G Claws
H Teeth
J Muscle

11 Which of these would be the *best* tool to measure the volume of water absorbed by a sponge?

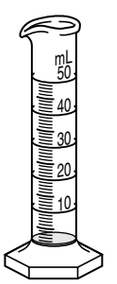
A



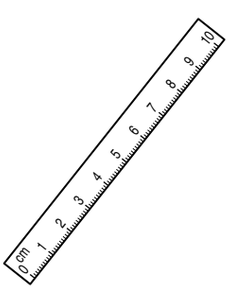
B



C

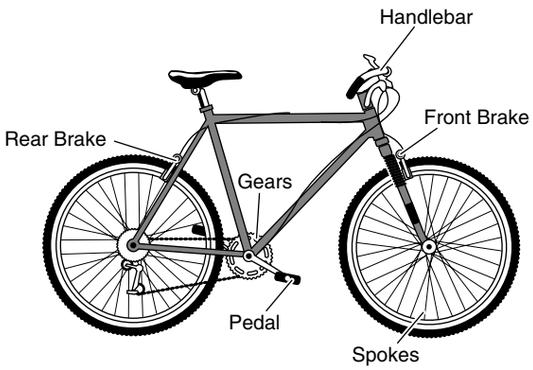


D



GO ON

12



Useful friction is created by the —

F gears
G curved handlebars
H spokes
J brakes

13 **Characteristics of Virginia Butterflies**

Butterfly	Habitat	Adult food
Clouded Skipper	Forests and swamps	Pink, purple, or white flowers
Cloudywing	Woodland and forest edges	Blue, purple, pink, or white flowers
Silver-spotted Skipper	Woods and streams	Blue, red, pink, purple, and white flowers
Appalachian Brown	Wet swamps and forest edges	Sap

Plants use their location and flower color to attract pollinators. A plant with red flowers living along a woodland stream would *most likely* be pollinated by which of these butterflies?

A Clouded Skipper
B Cloudywing
C Silver-spotted Skipper
D Appalachian Brown

14 **The Chesapeake Bay is important to the larger ocean ecosystem because —**

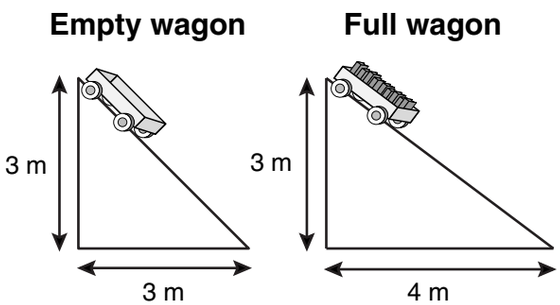
F it is the largest habitat for blue crabs in the United States
G it provides spawning grounds, nursery beds, and feeding grounds for many species of ocean creatures
H it serves as the winter home for tundra swans, Canada geese, and a variety of other ducks
J some species of freshwater fish come down from the rivers to spawn in the bay

15 **How is the Earth different from all of the other planets?**

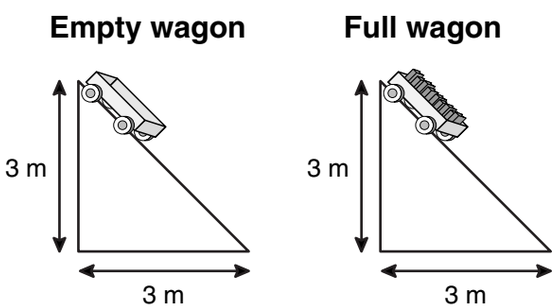
A It has a breathable atmosphere.
B It has a rocky surface.
C It is warmed by the sun.
D It rotates on its axis.

16 **A science class wanted to know if an empty wagon and a wagon full of books would roll down a ramp at the same speed. Which ramps should the students build to perform a fair test?**

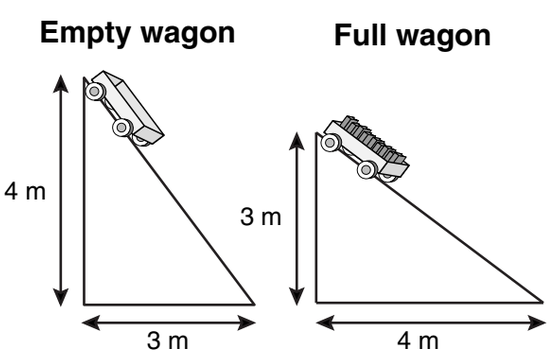
F



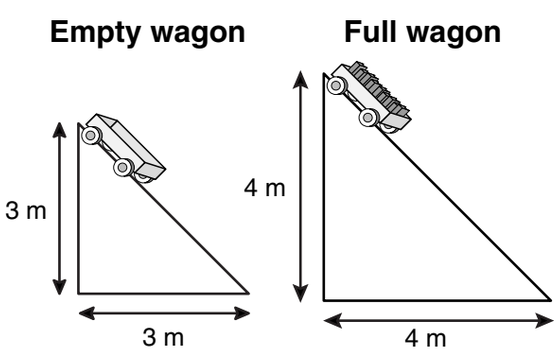
G



H



J



17

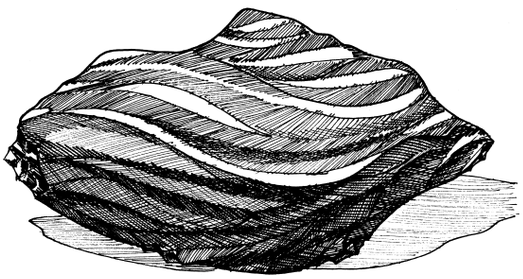
This fern plant has rows of little black dots on the back of the leaves. These little dots are not harmful. They hold millions of tiny reproductive cells called —

A pistils
B anthers
C spores
D chloroplasts

GO ON

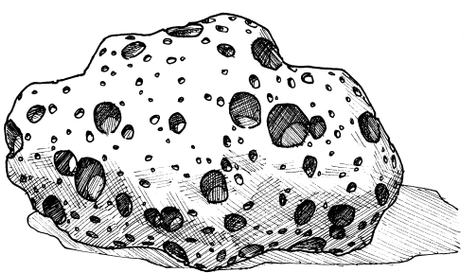
18 Which of the following rock samples contains fossils?

F



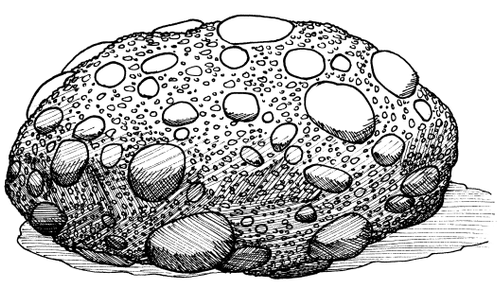
Obsidian

G



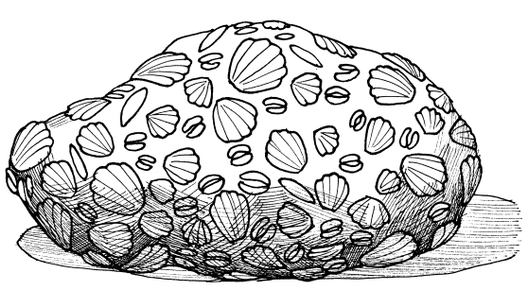
Pumice

H



Granite

J



Limestone

19 The height of a tree would best be measured in —

A liters
B meters
C grams
D Celsius

20 Which of these plants does *not* have special tissues to deliver food and water to its cells?

F Maple
G Dogwood
H Tomato
J Liverwort

21 To a brook trout, a stream would be its —

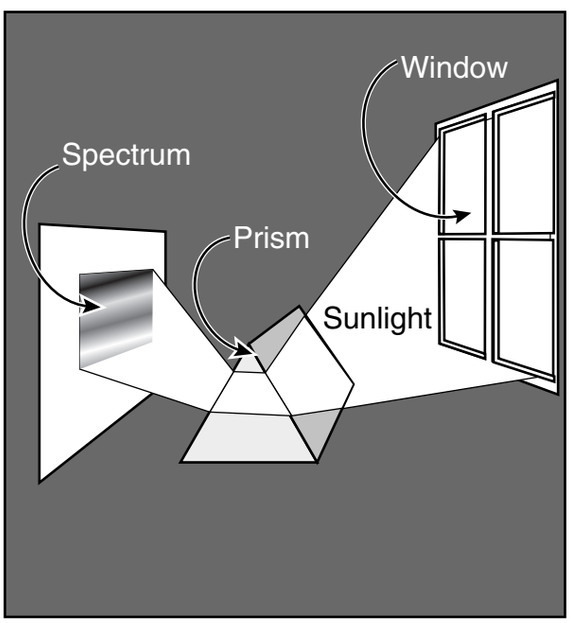
A niche
B habitat
C community
D population

GO ON

22 A bird that dies benefits a tree by providing it with —

F minerals
G carbohydrates
H water
J oxygen

23



The picture shows a study that Isaac Newton made with a prism to produce a spectrum. Newton's discovery led most directly to an understanding of the cause of —

A x-rays
B sunspots
C rainbows
D starlight

24 The Earth's surface can change either quickly or slowly. Which of these can happen when rocks and soil in the Earth move suddenly?

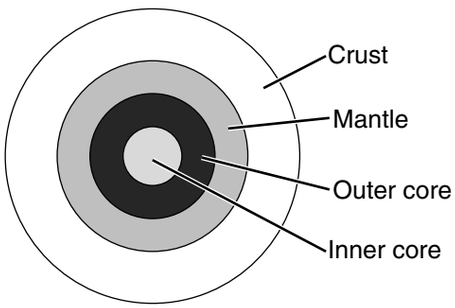
F Landslides
G Tornadoes
H Hurricanes
J Blizzards

25 A high soprano singer can break a crystal glass if the glass resonates with her voice. In order to do this, the sound the singer makes has to be —

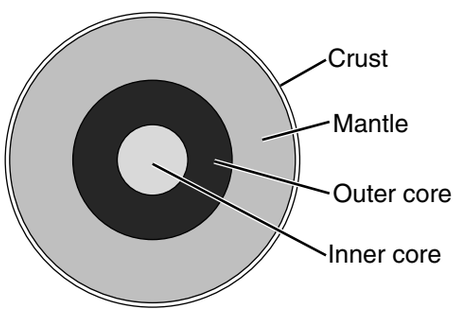
A speeded up before reaching the glass
B amplified before reaching the glass
C reflected off the glass
D able to vibrate the glass

26 Which of these best represents the Earth's structure?

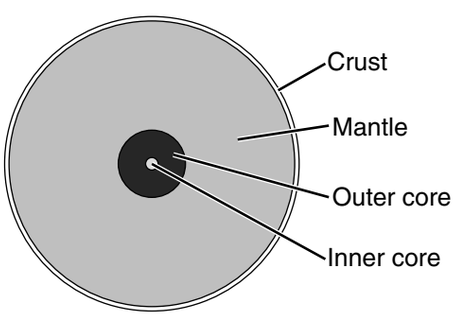
F



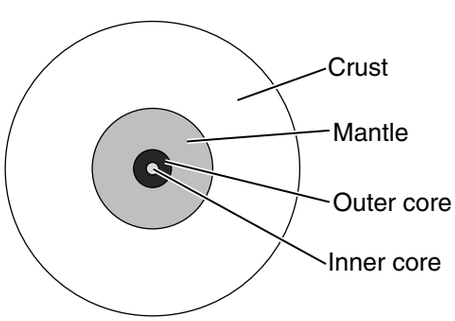
G



H

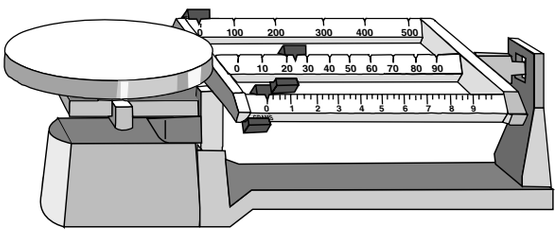


J

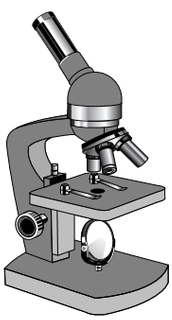


27 Which of these would be used to measure the mass of a marble?

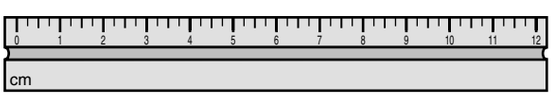
A



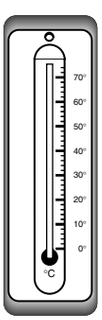
B



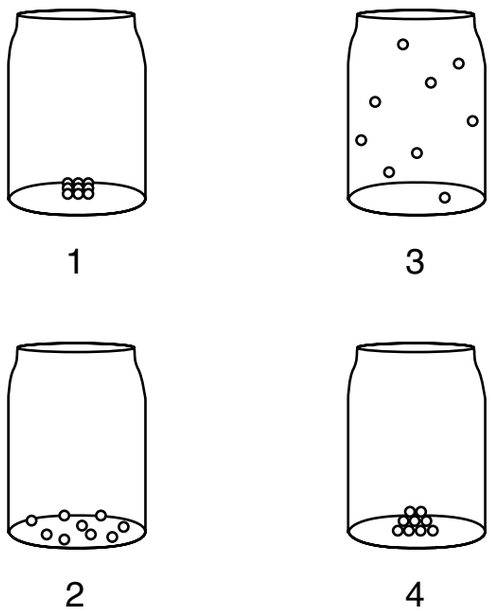
C



D



28



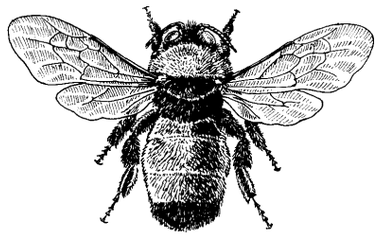
The circles in the bottles represent the same particles of matter. Which pattern of particles represents a gas in a bottle?

F 1
G 2
H 3
J 4

29 **A student wants to show how much the use of gasoline has increased over the last ten years. This information would *best* be displayed in a —**

A diagram
B bar graph
C line graph
D stem-and-leaf plot

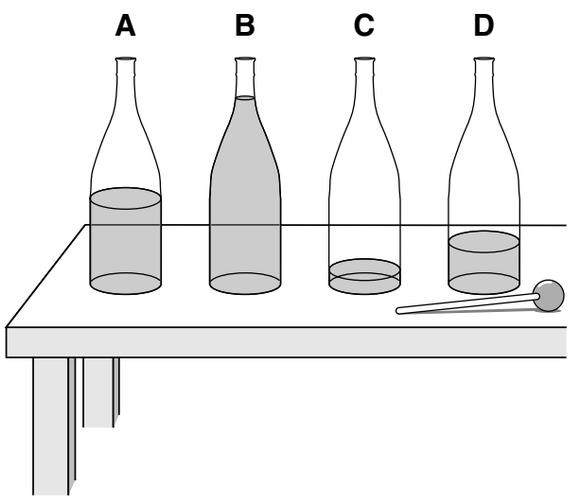
30



The picture shows a bumblebee. Which part of the bumblebee is most helpful in identifying it as an insect?

F Shape of eyes
G Number of legs
H Presence of wings
J Location of antennae

31



A student plans to investigate how sound changes when 4 bottles with different amounts of liquid are struck with a mallet. In which order must the bottles be placed so that the sound changes from a low pitch to a high pitch?

A A,B,D,C
B B,A,D,C
C B,C,A,D
D C,D,B,A

GO ON

32 Which of these materials is a good conductor of electricity?

F Rubber
G Glass
H Metal
J Newspaper

33 Which of the following would be classified as a vertebrate?

A

B

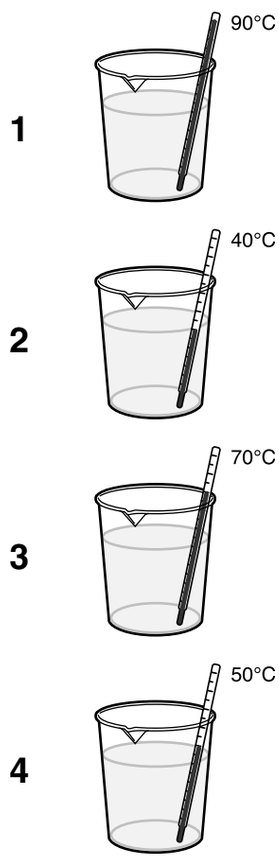
C

D

34 Why is photosynthesis important for plants?

F It collects sunlight which is used to make food for plants.
G It gets rid of plant waste products.
H It changes plant sugar into stronger chemicals.
J It helps attract insects to plant flowers.

35

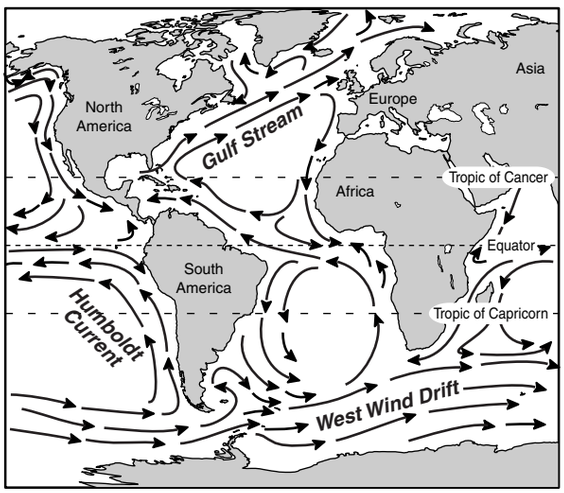


In which beaker of water will sugar dissolve the *fastest*?

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

GO ON

36



Sailors long ago would catch the current off the coast of Virginia. This current would help them get to —

F South America
G Central America
H Europe
J Southern Africa

37

Experimental Results

Student	Numbers of Seeds Sprouted
1	25
2	19
3	27
4	5

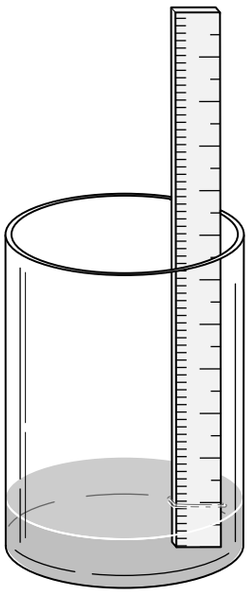
Some students recorded the number of bean seeds that sprouted in their experimental plots. Each student began with the same number and type of seeds, the same type of soil plot, and the same amount of water and sunlight. Which of the following students *most likely* made an error in the experiment?

A 1
B 2
C 3
D 4

38 **A comb is rubbed with a piece of wool fabric and placed next to some scraps of paper. The paper moves toward the comb. The movement of the paper is caused by —**

F chemical energy
G magnetic attraction
H mechanical energy
J static electricity

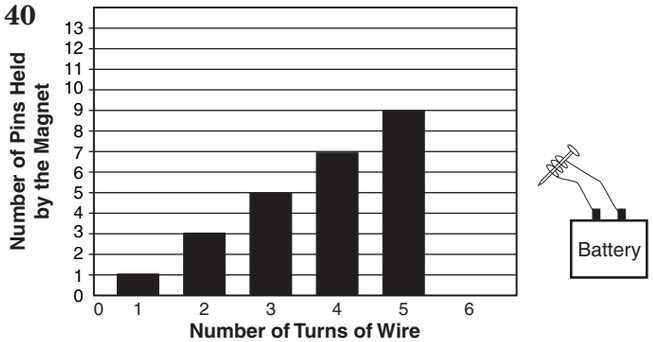
39



The simple instrument shown is used to measure —

A air pressure
B wind speed
C temperature
D precipitation

40



The picture shows the results of an experiment with an electromagnet. If the magnet had 6 turns of wire, how many pins would it probably pick up?

F 9
G 10
H 11
J 12

Answer Key

Test Sequence	Correct Response	Reporting Category	Reporting Category Description
1	C	018	Earth/Space Systems and Cycles
2	G	016	Force, Motion, Energy, and Matter
3	C	015	Scientific Investigation
4	F	016	Force, Motion, Energy, and Matter
5	D	015	Scientific Investigation
6	J	017	Life Processes and Living Systems
7	D	015	Scientific Investigation
8	G	018	Earth/Space Systems and Cycles
9	D	017	Life Processes and Living Systems
10	J	018	Earth/Space Systems and Cycles
11	C	015	Scientific Investigation
12	J	016	Force, Motion, Energy, and Matter
13	C	017	Life Processes and Living Systems
14	G	018	Earth/Space Systems and Cycles
15	A	018	Earth/Space Systems and Cycles
16	G	015	Scientific Investigation
17	C	017	Life Processes and Living Systems
18	J	018	Earth/Space Systems and Cycles
19	B	015	Scientific Investigation
20	J	017	Life Processes and Living Systems
21	B	017	Life Processes and Living Systems
22	F	017	Life Processes and Living Systems
23	C	016	Force, Motion, Energy, and Matter
24	F	018	Earth/Space Systems and Cycles
25	D	016	Force, Motion, Energy, and Matter
26	G	018	Earth/Space Systems and Cycles
27	A	015	Scientific Investigation
28	H	016	Force, Motion, Energy, and Matter
29	C	015	Scientific Investigation
30	G	017	Life Processes and Living Systems
31	B	016	Force, Motion, Energy, and Matter
32	H	016	Force, Motion, Energy, and Matter
33	D	017	Life Processes and Living Systems
34	F	017	Life Processes and Living Systems
35	A	016	Force, Motion, Energy, and Matter
36	H	018	Earth/Space Systems and Cycles
37	D	015	Scientific Investigation
38	J	016	Force, Motion, Energy, and Matter
39	D	018	Earth/Space Systems and Cycles
40	H	015	Scientific Investigation