

Released 2010
Achievement
Test

Science

GRADE
6

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This document contains a full release of test items from the 2010 [Grade 6 Science Achievement Test](#).

A test blueprint and an answer key that includes the difficulty, reporting category, topic, and item description for each test item will also be included. These materials, along with the [Program of Studies](#) and [subject bulletin](#), provide information that can be used to inform instructional practice.

[Assessment highlights reports](#) for all achievement test subjects and grades will be posted on the [Alberta Education](#) website every year in the fall

Assessment highlights provide information about the overall test, the test blueprints, and student performance on the 2011 Grade 6 Science Achievement Test. Also provided is commentary on student performance at the acceptable standard and the standard of excellence on selected items from the 2011 Achievement test. This information is intended for teachers and is best used in conjunction with the multi-year and detailed school reports that are available to schools via the extranet.

For further information, contact

Sean Wells, Grades 6 and 9 Science Assessment Standards Team Leader,
at Sean.Wells@gov.ab.ca;

Jennifer Ference Grades 6 and 9 Science Examiner,
at Jennifer.Ference@gov.ab.ca; or

Ken Marcellus, Director, Achievement Testing Program,
at Ken.Marcellus@gov.ab.ca, in the Assessment Sector, or call (780) 427-0010.

To call toll-free from within Alberta, dial 310-0000.

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2010 Achievement Test Questions

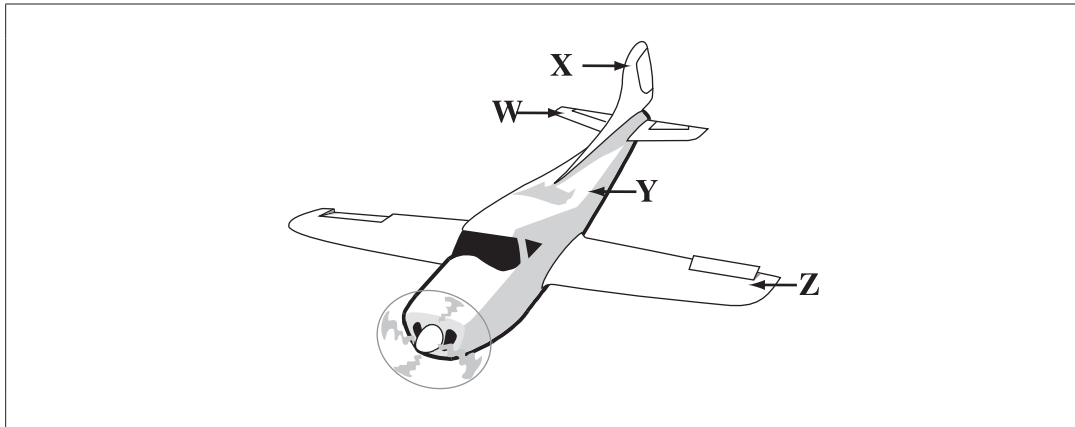
The questions presented in this document are from the previously secured 2010 Grade 6 Science Achievement Test and are representative of the questions that form achievement tests. These questions are released by Alberta Education for teacher and student use.

Grade 6 Achievement Test

2010

Science

Use the following diagram to answer question 1.



1. On which labelled component of the airplane is an elevator located?

- A. W
- B. X
- C. Y
- D. Z

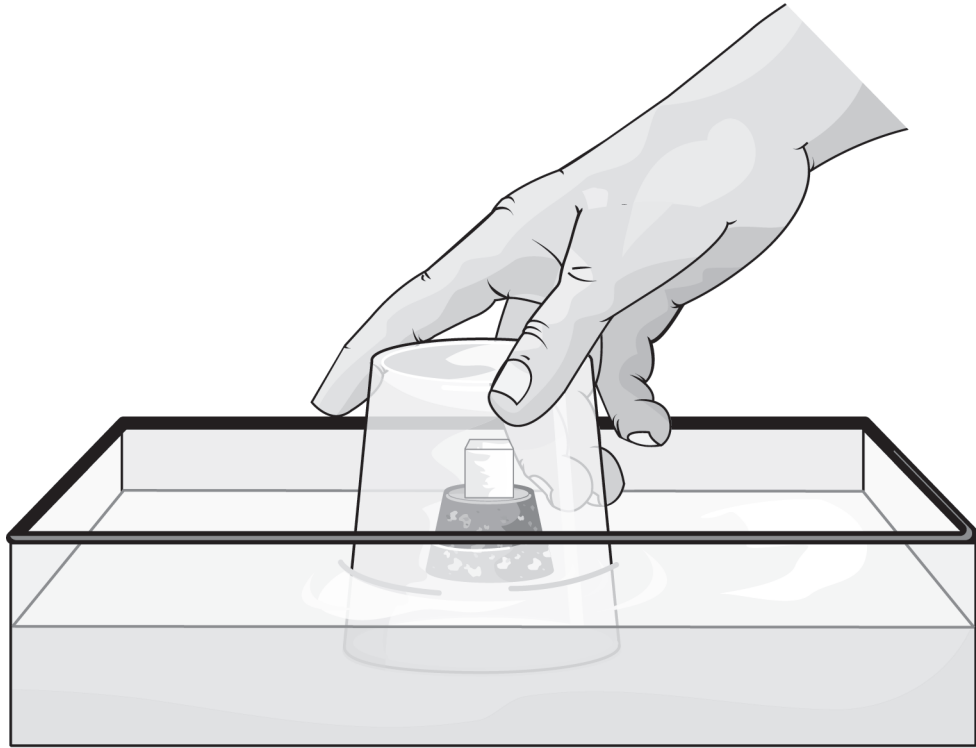
2. While in flight, an airplane experiences the downward force of *i* and the upward force of *ii* .

The statement above is completed by the information in row

Row	<i>i</i>	<i>ii</i>
A.	gravity	lift
B.	gravity	thrust
C.	drag	lift
D.	drag	thrust

Use the following information to answer question 3.

A sugar cube is balanced on a piece of cork floating in a small fish tank. An empty glass is inverted and placed over the cork and sugar cube. The glass is then pushed down to the bottom of the tank.



3. When the glass reaches the bottom of the tank, the sugar cube will **most likely**
- A. stay dry, because the air in the glass will expand
 - B. stay dry, because the air in the glass will take up space
 - C. get wet, because the water will exert less pressure than the air
 - D. get wet, because the water will exert more pressure than the air

Use the following information to answer question 4.

A student tests a parachute design and finds that the parachute is unstable during descent.

4. To increase the stability of the parachute, the student should
- A. use longer shroud lines
 - B. lighten the load on the parachute
 - C. use a different material for the canopy
 - D. put a small hole in the middle of the canopy
-

Use the following information to answer question 5.

A flap is a control surface on an airplane that is used primarily during landing.

5. Flaps are used to increase
- A. lift
 - B. drag
 - C. thrust
 - D. gravity

Use the following information to answer question 6.

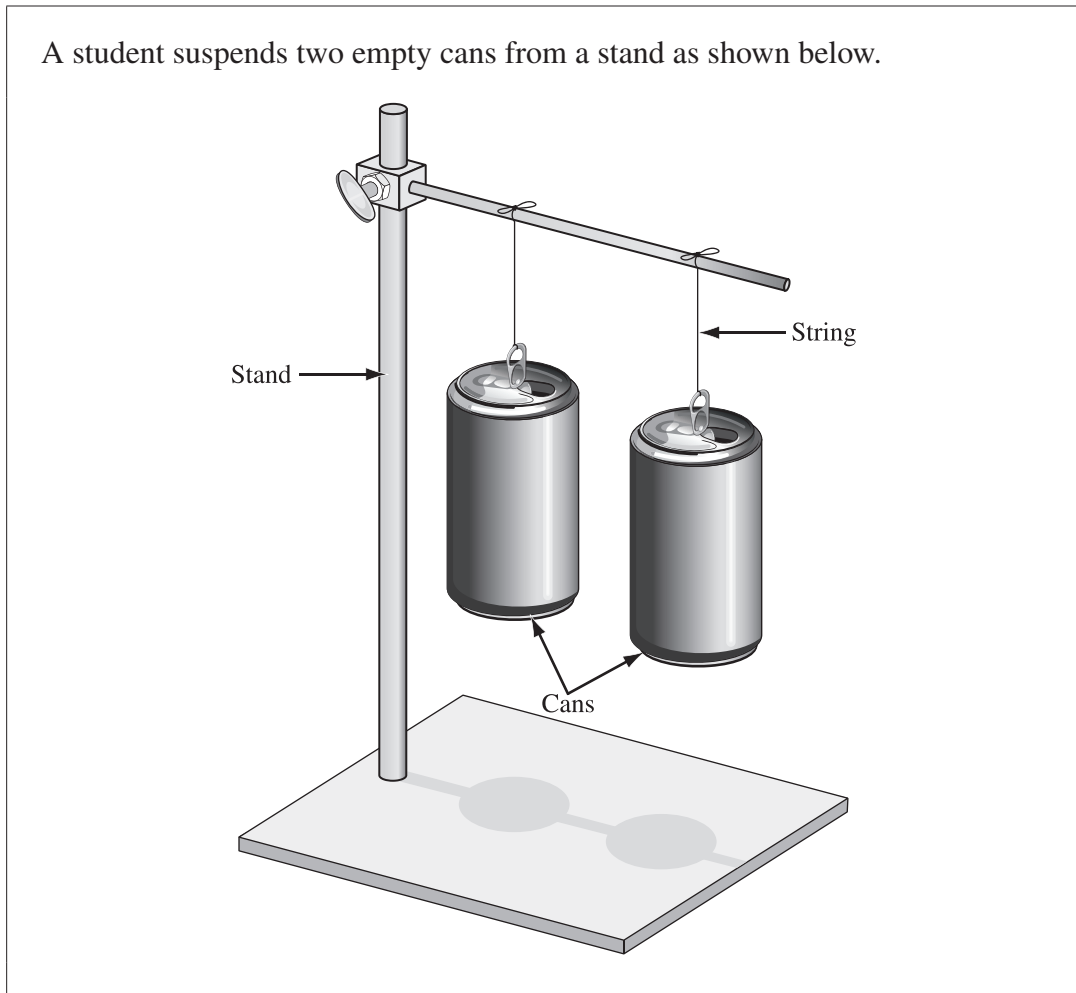
Ricardo completed eight trials of his paper airplane model, which he designed to travel at least 10 m. The following chart shows the results of the trials.

Distance Travelled by a Paper Airplane Model	
Trial Number	Distance Travelled (m)
1	10
2	7
3	15
4	15
5	5
6	5
7	5
8	5

6. Which of the following statements does the data above **best** support?
- A. The materials used were too heavy.
 - B. The materials used were too light.
 - C. The design was unreliable.
 - D. The design was reliable.

Use the following information to answer question 7.

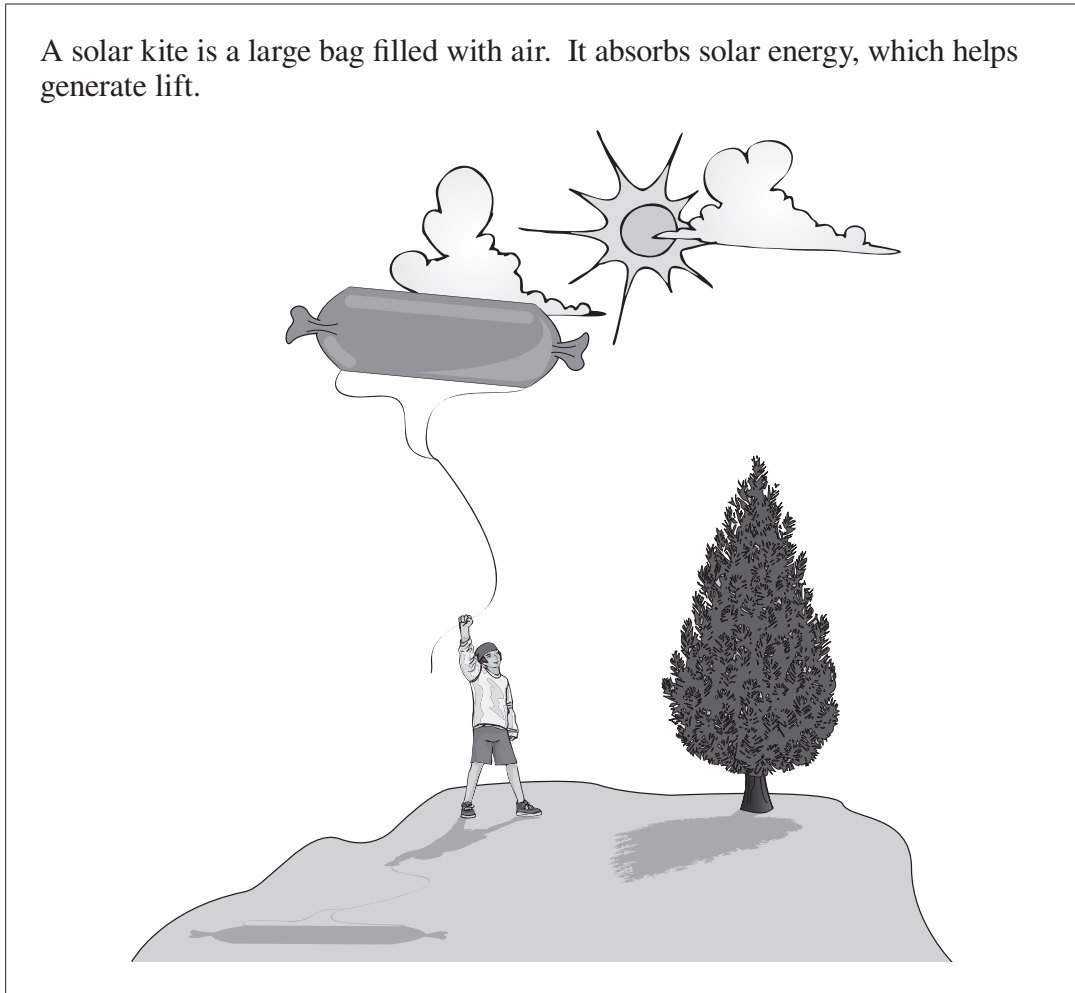
A student suspends two empty cans from a stand as shown below.



7. If a constant stream of air is blown between the cans shown in the diagram above, then the cans will **most likely** move
- A. up and down
 - B. back and forth
 - C. toward each other
 - D. away from each other

Use the following information to answer question 8.

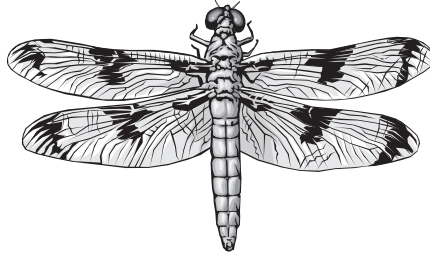
A solar kite is a large bag filled with air. It absorbs solar energy, which helps generate lift.



8. A solar kite rises because the air inside the kite
- A. expands and becomes less dense
 - B. contracts and becomes less dense
 - C. expands and becomes more dense
 - D. contracts and becomes more dense

Use the following information to answer question 9.

The veins in a dragonfly's wings provide both rigidity and flexibility, which are necessary for flight.



9. The veins in a dragonfly's wings **most likely** provide
- A. propulsion for the dragonfly in flight
 - B. streamlining of the dragonfly wing
 - C. stability for the dragonfly wing
 - D. lift for the dragonfly in flight
-

Use the following information to answer question 10.

Melanie carried out four trial flights in which she manipulated the control surfaces of an airplane. The results are shown below.

- Trial 1** The airplane rolled clockwise.
- Trial 2** The airplane rolled counter-clockwise.
- Trial 3** The nose of the airplane moved upward.
- Trial 4** The nose of the airplane moved downward.

10. In which trials did the control surfaces act as elevators?
- A. Trials 1 and 2
 - B. Trials 1 and 4
 - C. Trials 2 and 3
 - D. Trials 3 and 4

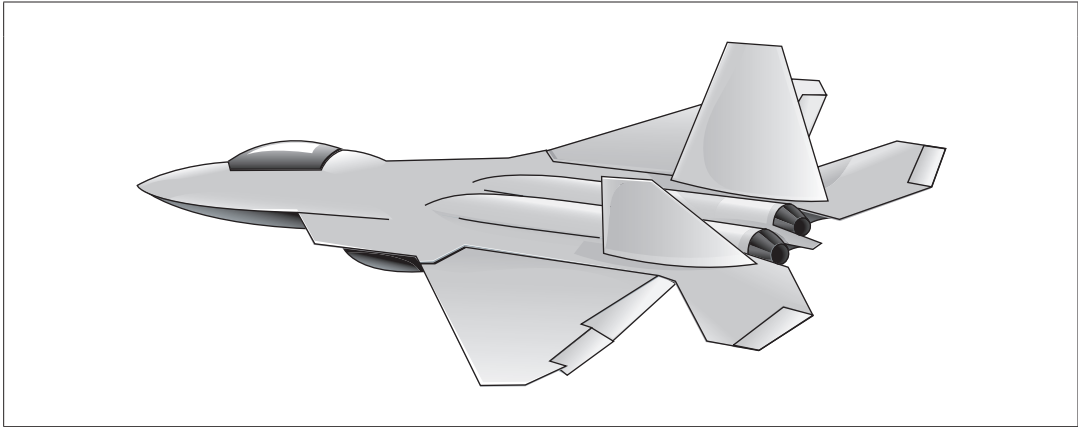
Use the following information to answer questions 11 and 12.

Four model helicopters were tested, and the forces acting on them were measured and recorded.

Helicopters	Lift (N)	Drag (N)	Thrust (N)	Gravity (N)
I	20	40	45	20
II	20	60	50	15
III	50	30	30	50
IV	50	20	40	40

11. Which helicopter was **most likely** hovering when its measurements were recorded?
- A. I
 - B. II
 - C. III
 - D. IV
12. The **most likely** reason for the difference in drag between helicopters III and IV is that
- A. helicopter III is heavier than helicopter IV
 - B. helicopter IV is heavier than helicopter III
 - C. helicopter III is more streamlined than helicopter IV
 - D. helicopter IV is more streamlined than helicopter III

Use the following illustration to answer question 13.

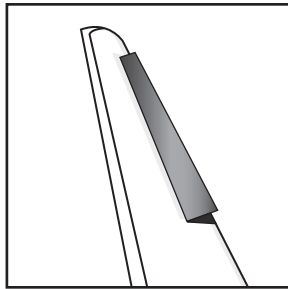


13. The fighter plane above has two horizontal and two vertical stabilizers, which help give it more
- A. lift
 - B. drag
 - C. thrust
 - D. control
-

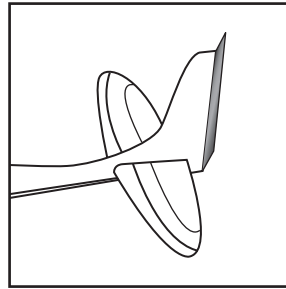
14. Which of the following processes does **not** use oxygen?
- A. Photosynthesis
 - B. Breathing
 - C. Burning
 - D. Rusting

15. Which of the following shaded structures produces thrust in an airplane?

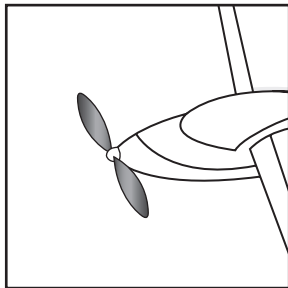
A.



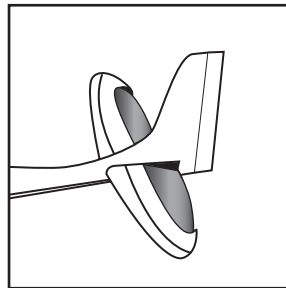
B.



C.



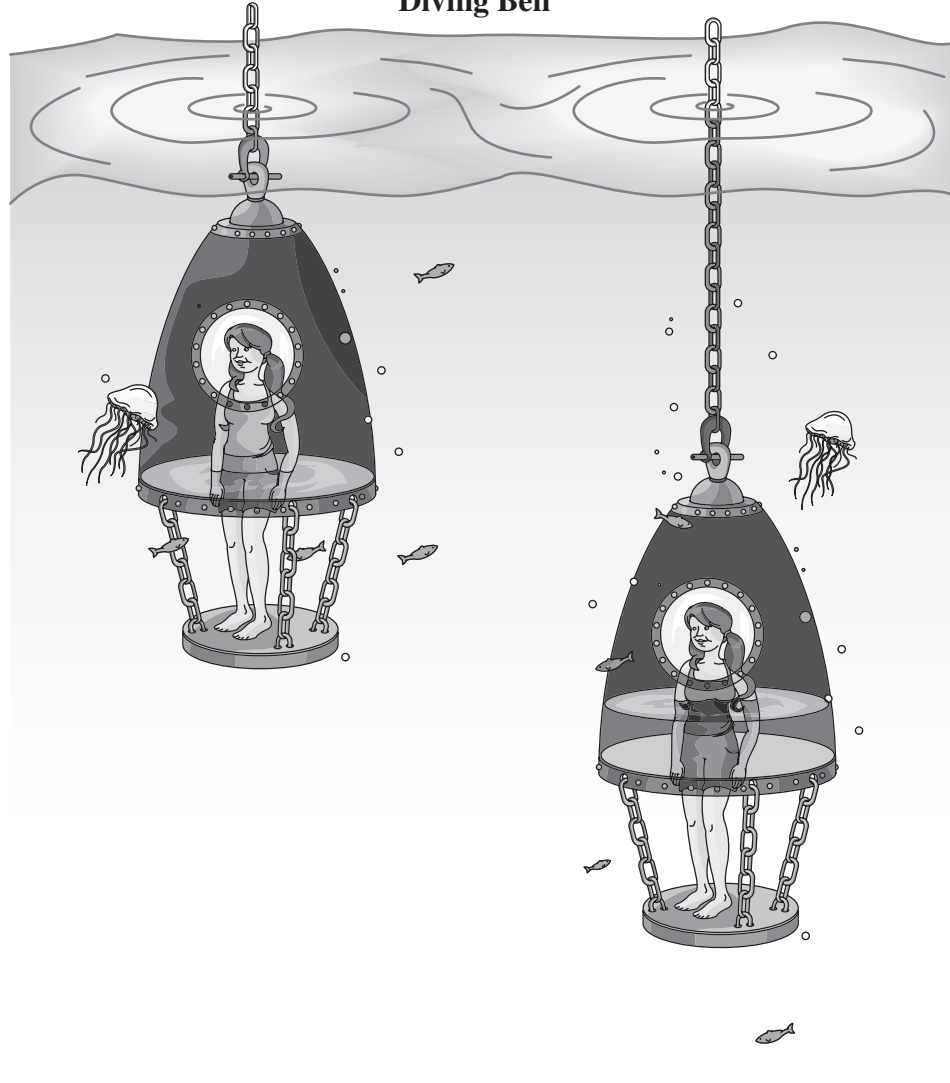
D.



Use the following information to answer question 16.

Water enters a diving bell as it descends.

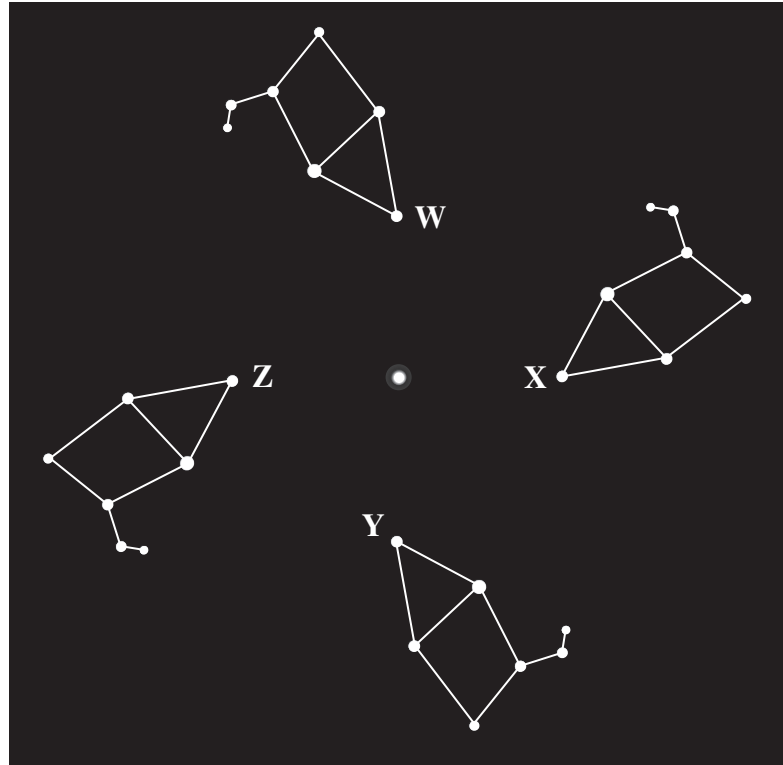
Diving Bell



16. Water enters the diving bell because the air inside it
- A. flows
 - B. is compressed
 - C. takes up space
 - D. exerts pressure

Use the following information to answer question 17.





The constellation Cepheus can be seen in the northern night sky. The position of Cepheus appears to change throughout the year.











17. If the position marked W on the diagram above represents the constellation Cepheus in June, then the position marked Y represents the constellation Cepheus in
- A. March
 - B. May
 - C. September
 - D. December

Use the following information to answer question 18.

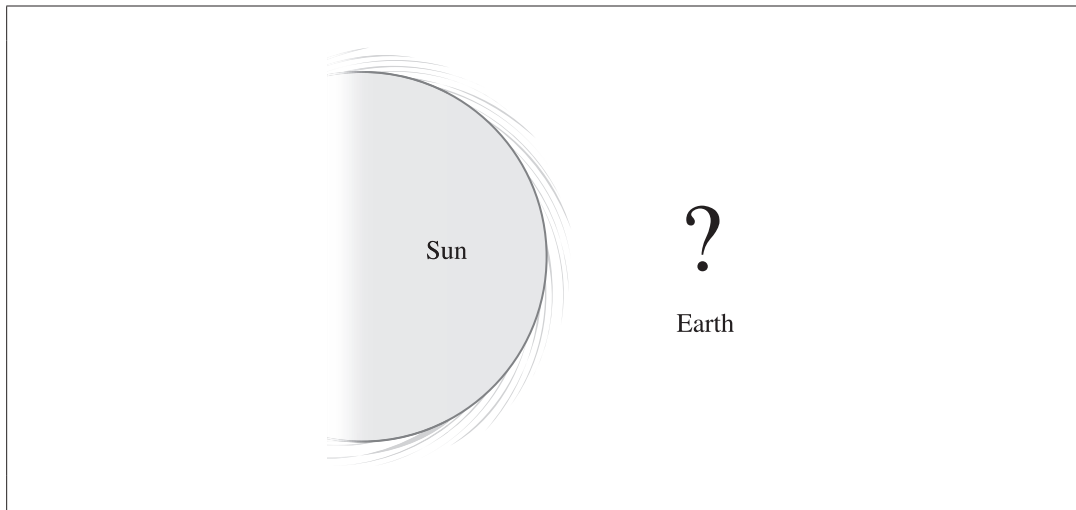
Jill's class observes the phases of the moon over the course of 28 days. They then fill in the following table.

Day	Drawing of Moon phase	Day	Drawing of Moon phase
1		18	
4		21	?
14	?	28	

18. Which of the following rows shows the phases of the moon that would be seen on day 14 and day 21?

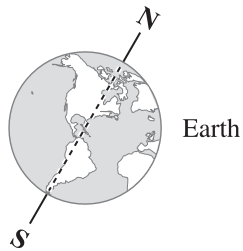
Row	Day 14	Day 21
A.		
B.		
C.		
D.		

Use the following diagram to answer question 19.

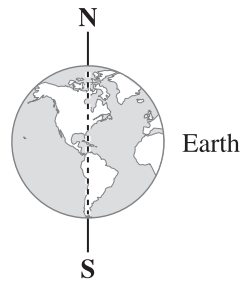


19. Which of the following diagrams shows the orientation of Earth when it is summer in Canada?

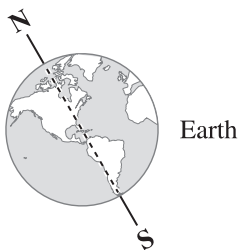
A.



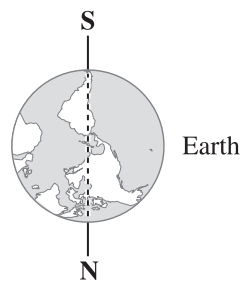
B.



C.



D.



Use the following information to answer question 20.

Paul wanted to investigate the movement of the Sun over the course of a day. He used a sundial to measure the length of a shadow once every hour from sunrise to sunset.

20. Which of the following variables must be kept the same in order to obtain reliable data from this activity?
- A. Type of sundial and location of sundial
 - B. Length of shadow and location of sundial
 - C. Type of sundial and the times at which measurements are taken
 - D. Length of shadow and the times at which measurements are taken

21. One similarity between asteroids and *i* is that both *ii* light.

The statement above is completed by the information in row

Row	<i>i</i>	<i>ii</i>
A.	stars	emit
B.	stars	reflect
C.	comets	emit
D.	comets	reflect

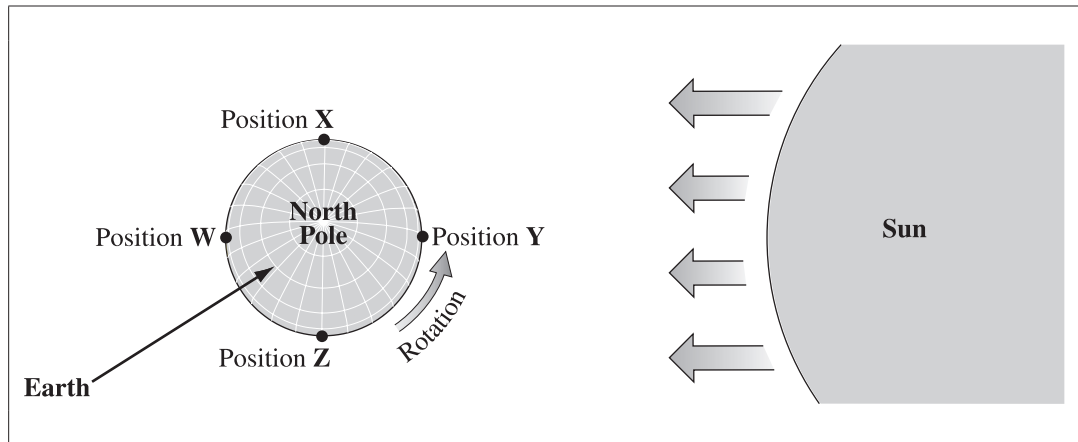
Use the following information to answer question 22.

A student compares the four inner planets.

	Mercury	Venus	Earth	Mars
Mean distance from the Sun (AU)	0.39	0.72	1.00	1.52
Period of revolution around the Sun (approximate Earth days)	88	226	365	686
Diameter (km)	4 879	12 104	12 756	6 792
Rotation period (about axis)	59.0 Earth days	243 Earth days	24 Earth hours	24.6 Earth hours
Average temperature	167 °C	464 °C	15 °C	-63 °C

22. Which of the following statements can be made based on the data in the chart?
- A. Mercury is the closest planet to Venus.
 - B. Earth is the coldest of the inner planets.
 - C. Mars has the shortest day of the inner planets.
 - D. Venus is the closest planet in diameter to Earth.

Use the following diagram to answer question 23.



23. How long will it take for Earth to rotate so that position X is directly facing the Sun?
- A. 6 hours
 - B. 8 hours
 - C. 12 hours
 - D. 18 hours

Use the following information to answer question 24.

Components of the Universe

- Stars
- Planets
- Comets
- Galaxies

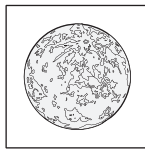
24. Which of the following lists orders the components of the universe from the component with the **largest** diameter to the component with the **smallest** diameter?
- A. Galaxies, stars, comets, planets
B. Galaxies, stars, planets, comets
C. Planets, comets, stars, galaxies
D. Comets, planets, stars, galaxies
-

25. Which of the following diagrams represents the phase of the Moon seen from Earth when the Moon is directly between Earth and the Sun?

A.



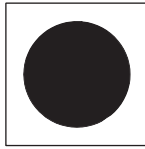
B.



C.



D.

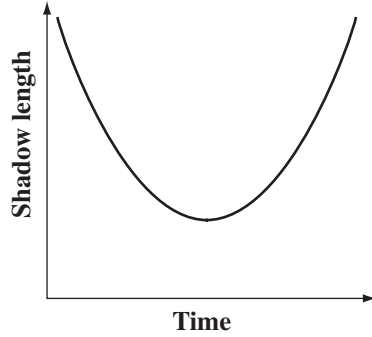


Use the following information to answer question 26.

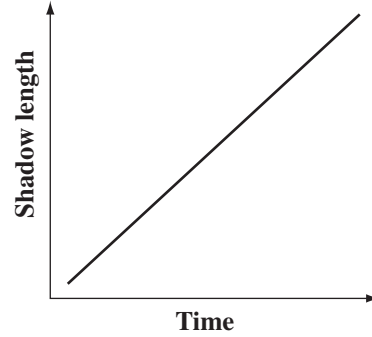
Students are asked to measure the length of the shadow on a sundial once each hour from sunrise to sunset.

26. Which of the following graphs **most likely** represents data gathered during summer?

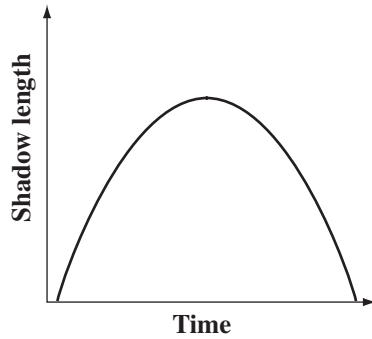
A.



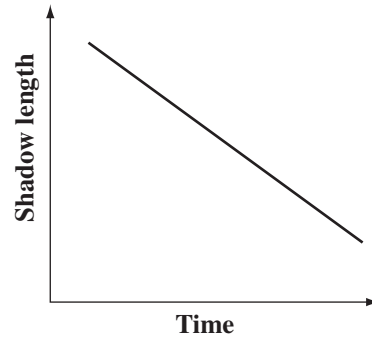
B.



C.



D.



Use the following information to answer question 27.

A student lists some of the variables in a chromatography experiment he conducts.

- Type of marker tested
- Volume of water used
- Length of line placed on paper
- Separation of the ink

27. Which of the following rows identifies the manipulated variable and the responding variable in this experiment?

Row	Manipulated Variable	Responding Variable
A.	Type of marker tested	Separation of the ink
B.	Type of marker tested	Volume of water used
C.	Length of line placed on paper	Separation of the ink
D.	Length of line placed on paper	Volume of water used

Use the following information to answer question 28.

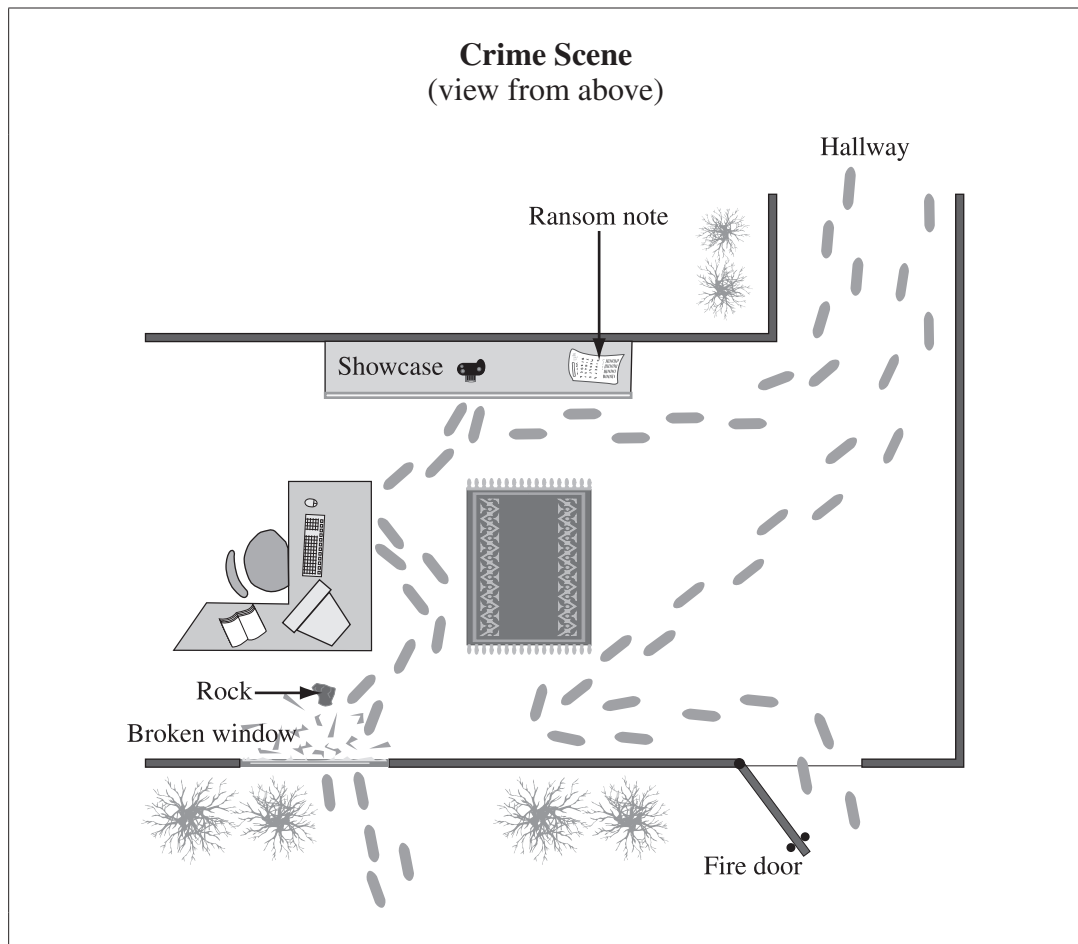
Andrea enlarges fingerprints of her left index finger and of her right index finger.



28. Which of the following rows identifies the fingerprint patterns on Andrea's left and right index fingers?

Row	Left Index Finger	Right Index Finger
A.	Whorl	Arch
B.	Whorl	Loop
C.	Arch	Whorl
D.	Arch	Loop

Use the following diagram to answer questions 29 to 31.

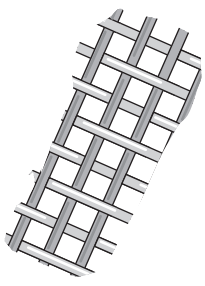


29. An inference that can be made about the crime scene shown above is that the suspect **most likely** entered through the
- A. fire door and exited through the window
 - B. window and exited through the fire door
 - C. fire door and exited from the hallway
 - D. window and exited from the hallway

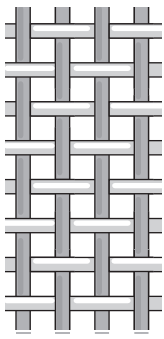
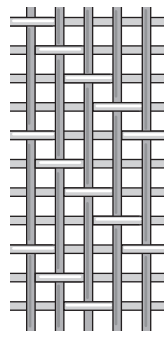
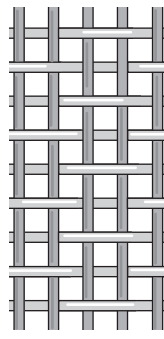
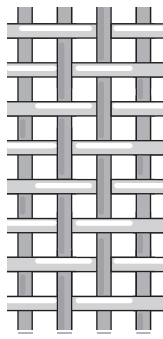
30. A piece of fabric that was found at the crime scene was **most likely** found beside the
- A. desk
 - B. window
 - C. fire door
 - D. showcase

Use the following additional information to answer question 31.

Fabric Sample Found at the Crime Scene



Fabric Samples Collected From the Shirts of Four Suspects

Suspect W	Suspect X	Suspect Y	Suspect Z
			

31. Which suspect's fabric sample **most closely** resembles the fabric found at the crime scene?
- A. Suspect W
 - B. Suspect X
 - C. Suspect Y
 - D. Suspect Z

Use the following information to answer question 32.

Jackson's running shoes were missing from his gym locker at school. He found the following note on his locker door.

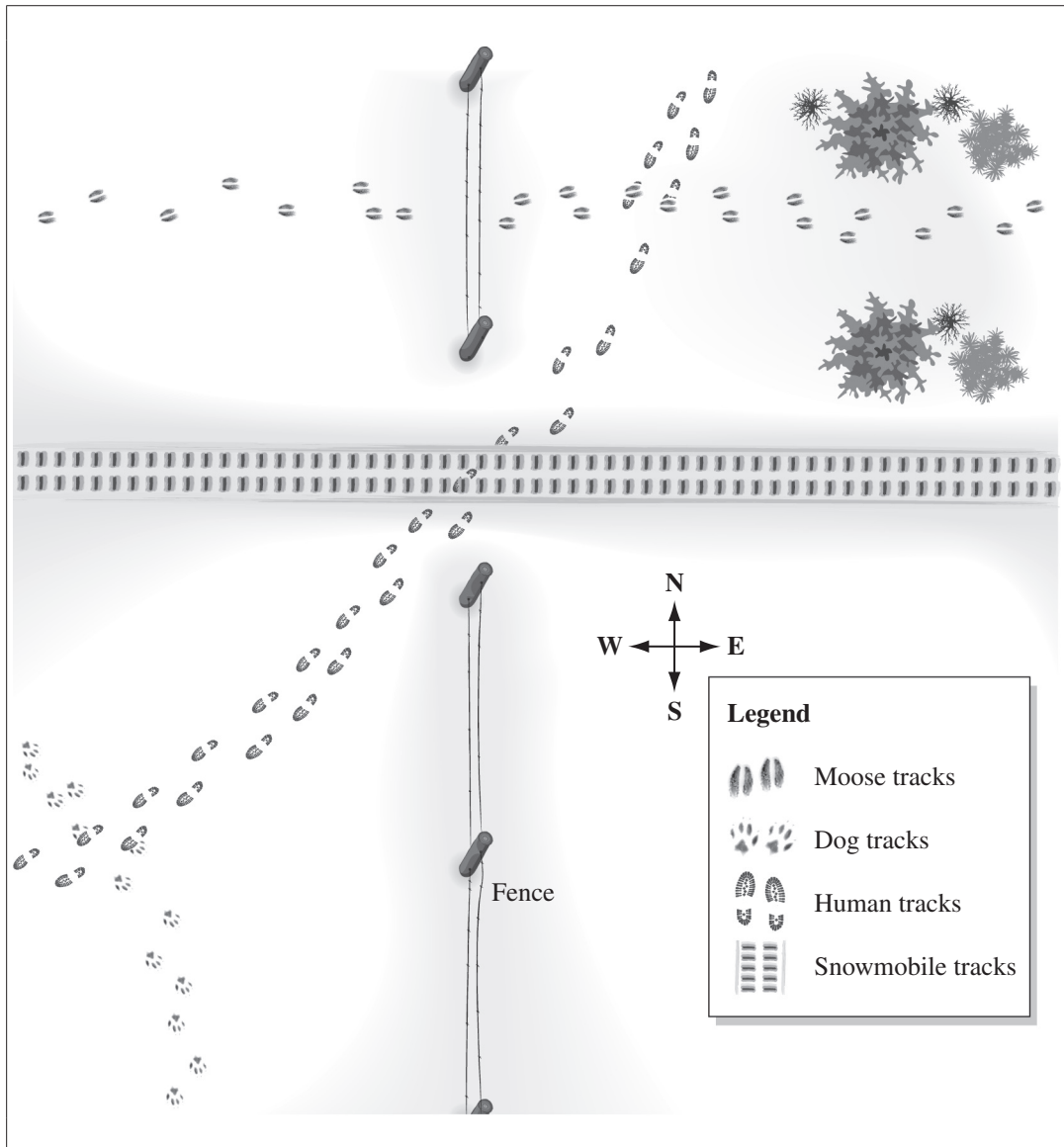
Your running shoes are now mine!

Jackson lists the following characteristics which could be used to help compare handwriting samples.

Characteristics	
1	The slant of the letters
2	How specific letters are formed
3	The colour of the ink
4	The size of the letters
5	The brand name of the pen

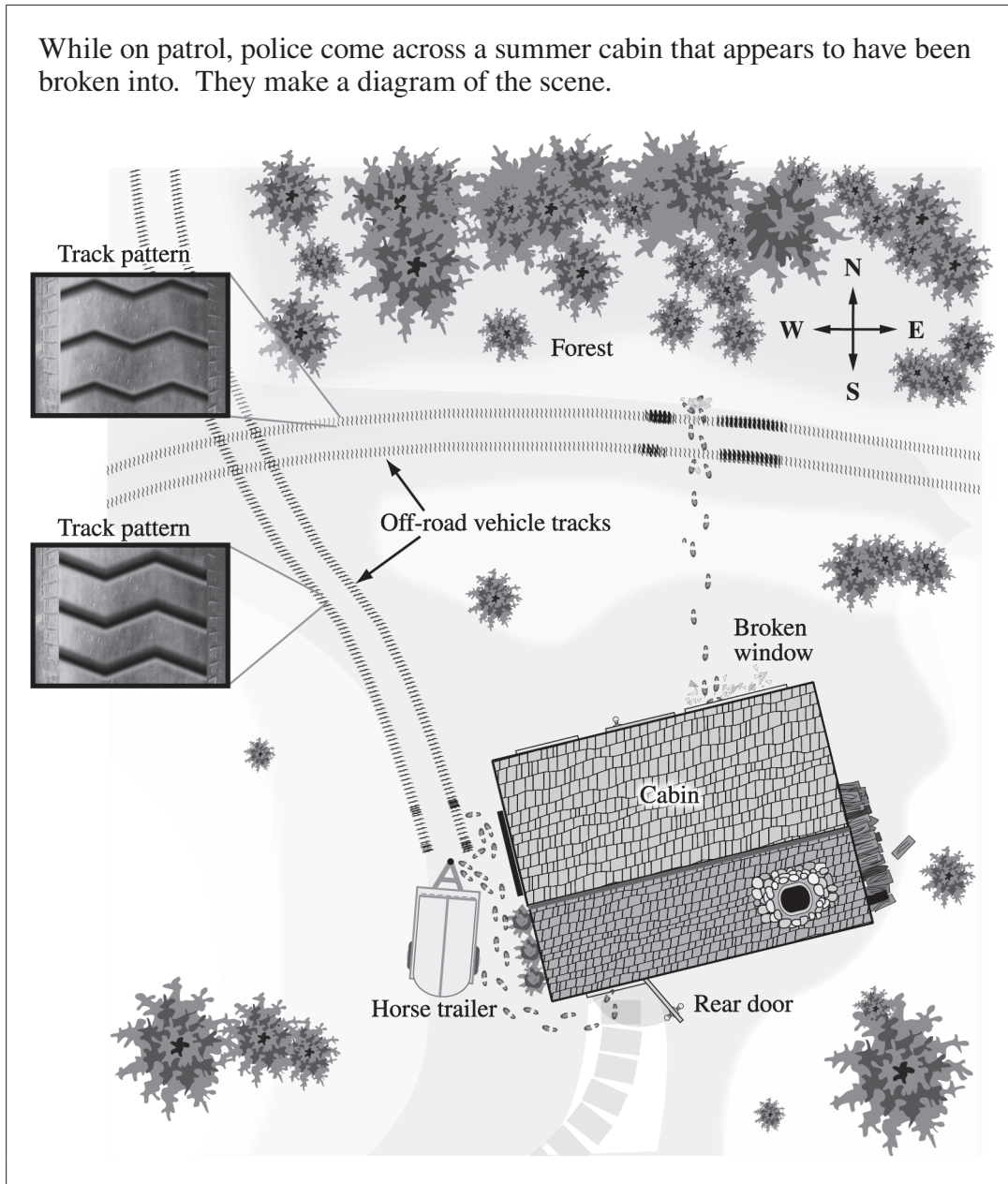
32. Which of the following lists identifies the characteristics that Jackson should use to compare handwriting samples from students in his class to the sample he found on his locker door?
- A. Characteristics 1, 2, and 4
 - B. Characteristics 2, 4, and 5
 - C. Characteristics 1, 3, and 4
 - D. Characteristics 2, 3, and 5

Use the following diagram to answer question 33.



33. For which of the tracks above would it be **most** difficult to determine the direction of travel?
- A. Dog
 - B. Moose
 - C. Human
 - D. Snowmobile

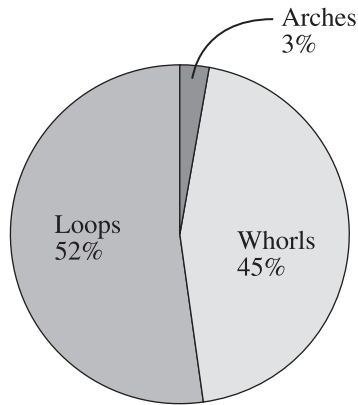
Use the following information to answer question 34.



34. Which of the following statements is an observation that can be made from the diagram?
- A. The rear door of the cabin is open.
 - B. The window was broken with a rock.
 - C. The off-road vehicle tracks were made by the same vehicle.
 - D. The robber could not hook up the horse trailer to the vehicle.

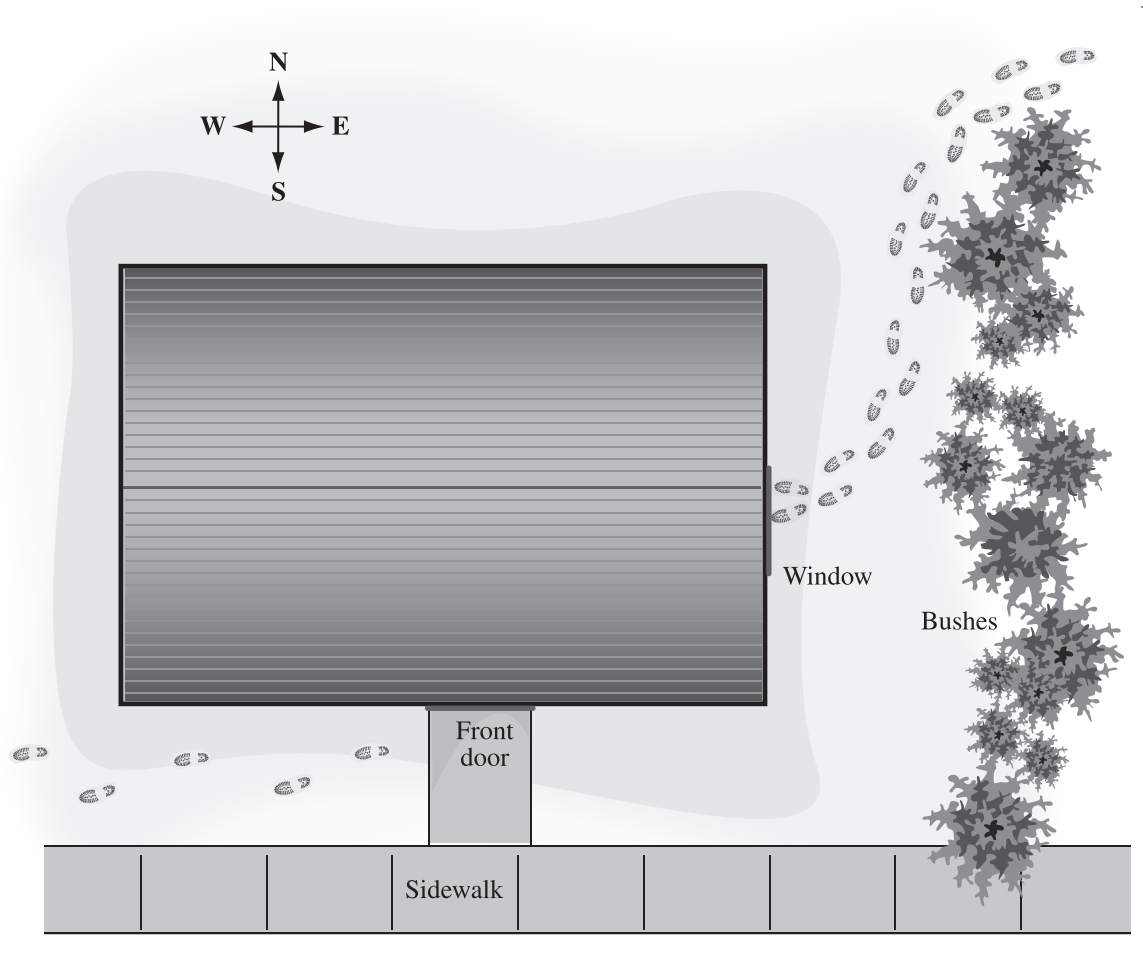
Use the following information to answer question 35.

A student completes a study to determine which fingerprint pattern is found most commonly on the right index fingers of the 500 students in her school. Using an ink pad and white paper, the student takes the right index fingerprint of 33 students. The results are shown below.



35. To obtain more accurate results in a repeat of this experiment, the student should
- A. take fingerprints from a different finger
 - B. take the fingerprints of students from a different grade
 - C. obtain more fingerprints from other students in the school
 - D. use a different procedure to obtain fingerprints from students in the school

Use the following information to answer question 36.



36. Which of the following rows correctly identifies the direction and speed of travel for the set of footprints exiting the house above?

Row	Direction	Type of Stride
A.	West	Running
B.	West	Walking
C.	East	Running
D.	East	Walking

Use the following information to answer question 37.

A clothes designer wants to determine the best fabric to make a hiking jacket he is designing. He needs to determine which fabric will be most effective at keeping a person dry, warm, and protected from the wind.

Types of Fabric

Fabric Sample	Elasticity of Fabric	Moisture Absorption	Weave Pattern
I	Inelastic	Yes	Tight
II	Inelastic	No	Loose
III	Elastic	Yes	Loose
IV	Elastic	No	Tight

37. Which fabric is **most suitable** for the hiking jacket?

- A. I
- B. II
- C. III
- D. IV

Use the following information to answer question 38.

Four steps in an experiment involving spruce seeds are given below.

- I** Five seeds are placed into each of four cups.
- II** The same amount of water is added to each cup.
- III** Each cup is placed in a separate location.
- IV** Each location has a different temperature.

The number of days that it took the spruce seeds to germinate at each temperature is recorded below.

Temperature of the Location Where Seeds Are Put (°C)	Germination Time (Days)
20	8
18	10
16	14
14	20

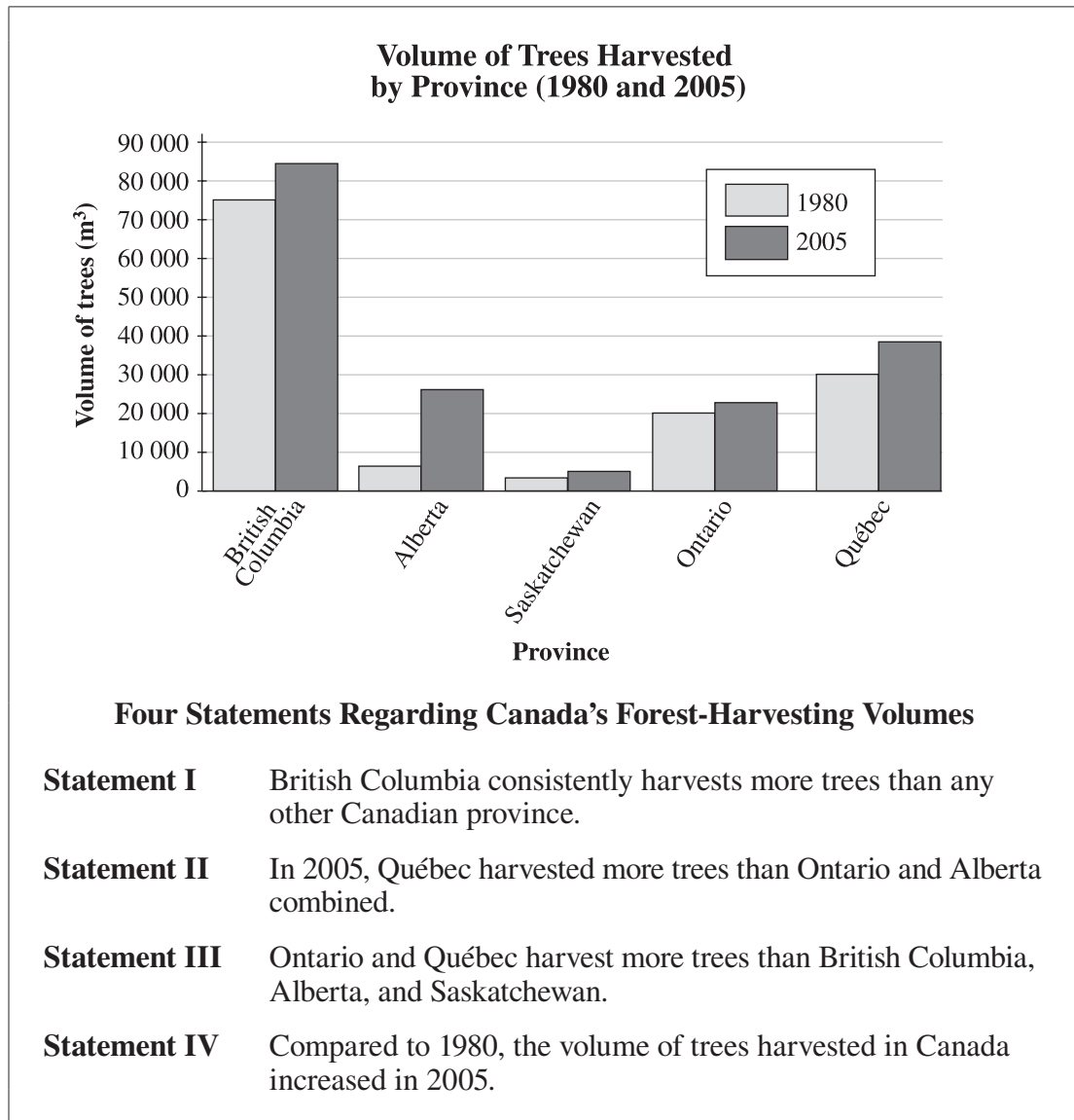
38. The responding (dependent) variable in the experiment was the

- A. size of the cups
 - B. volume of water
 - C. number of days to germinate
 - D. number of seeds that germinated
-

39. The nutrient cycle is driven by energy from the

- A. Sun
- B. ocean
- C. ground
- D. atmosphere

Use the following information to answer question 40.



40. Which of the statements above comparing forest-harvesting volumes in 1980 and 2005 are **correct**?
- A. Statements I and III
 - B. Statements I and IV
 - C. Statements II and III
 - D. Statements II and IV

Use the following information to answer question 41.

Functions of Tree Parts

- 1** Produce oxygen
- 2** Provide support
- 3** Transport food and water
- 4** Take in carbon dioxide

41. Which of the following pairs of functions is performed by a tree trunk?
- A. 1 and 3
 - B. 1 and 4
 - C. 2 and 3
 - D. 2 and 4
-

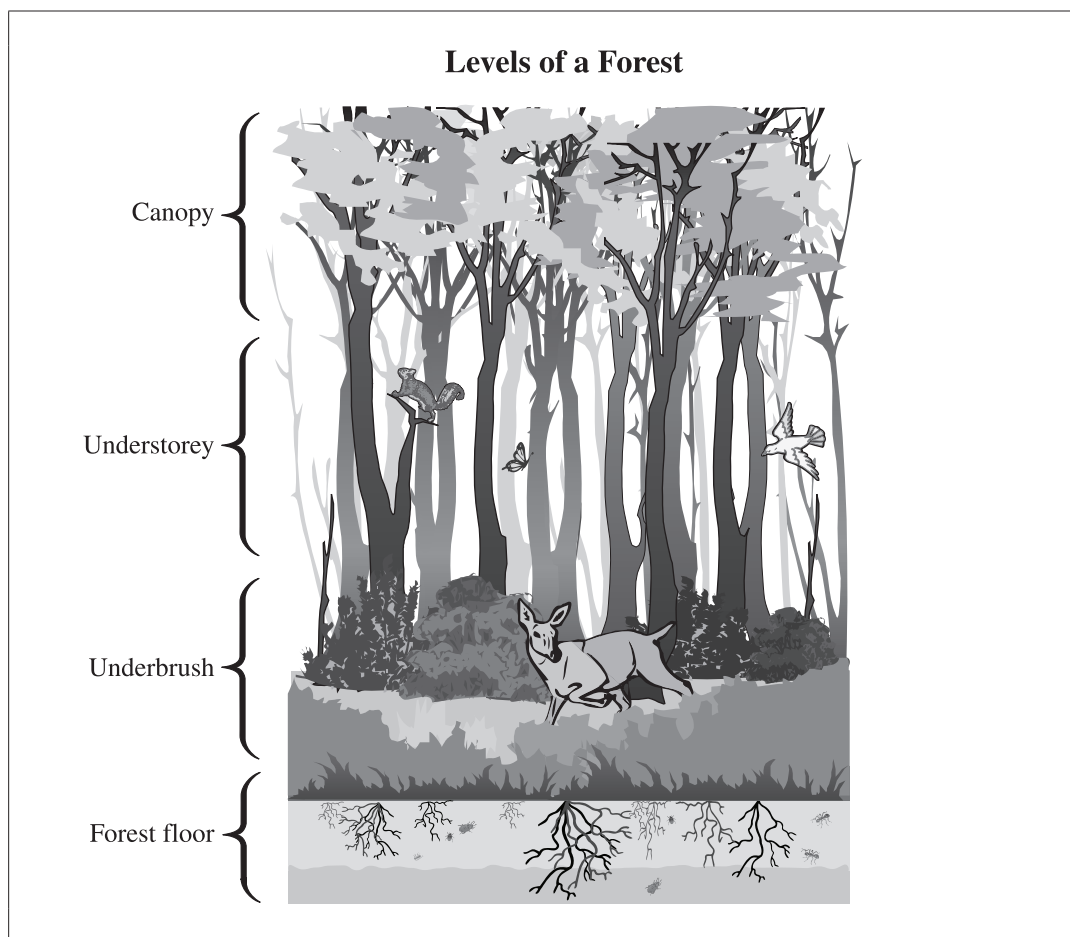
Use the following information to answer question 42.

The following chart lists some observations of leaves that are affected by mould.

Location of Mould on Leaf	Condition of Leaf
Tip of leaf covered	Green and healthy
Only bottom of leaf covered	Leaf turns brown and falls off
Only top of leaf covered	Edges turn brown
Both top and bottom of leaf covered	Leaf turns brown and falls off

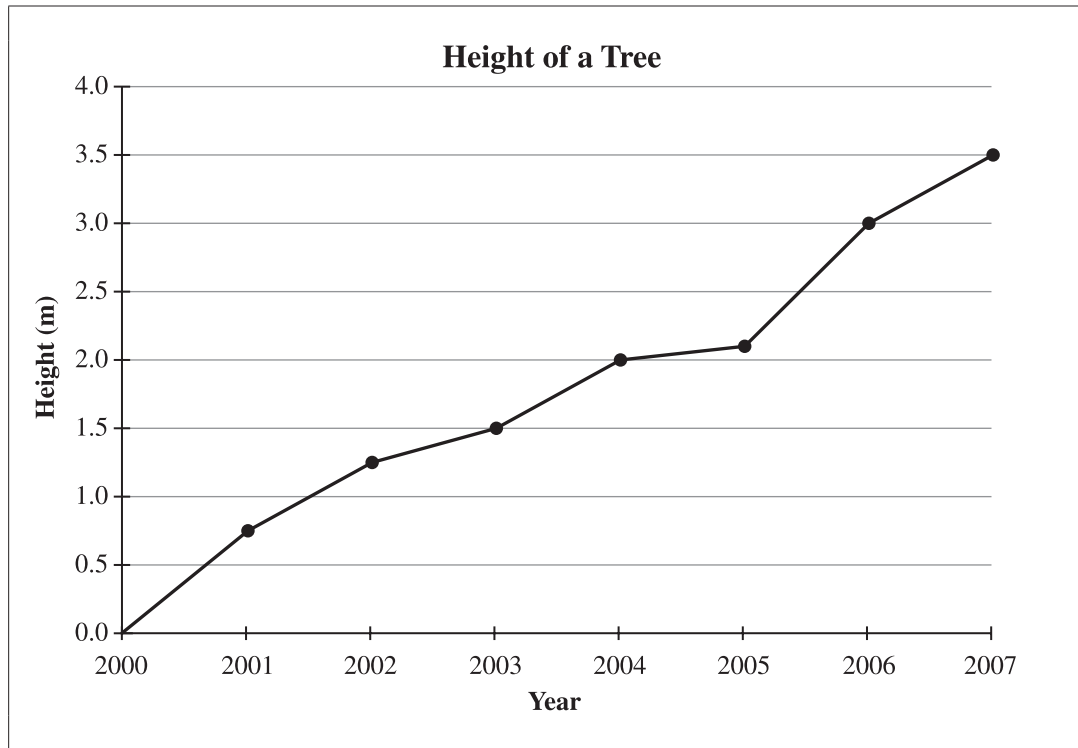
42. A conclusion that can be made from the information in the chart above is that a leaf will die when there is mould on the
- A. tip of the leaf
 - B. top of the leaf
 - C. edges of the leaf
 - D. bottom of the leaf

Use the following diagram to answer question 43.



43. Which of the following factors **most likely** prevents the growth of certain plants in the forest underbrush?
- A. Temperature
 - B. Water availability
 - C. Amount of sunlight
 - D. Nutrient availability
-
44. Which of the following lists identifies only organisms that are herbivores?
- A. Deer, rabbit, beaver
 - B. Owl, eagle, grizzly bear
 - C. Willow, tamarack, wild rose
 - D. Bacteria, earthworm, mushroom


Use the following information to answer question 45.





45. During which years was the tree's growth **most likely** affected by drought?
- A. 2003–2004
 - B. 2004–2005
 - C. 2005–2006
 - D. 2006–2007


Use the following information to answer question 46.

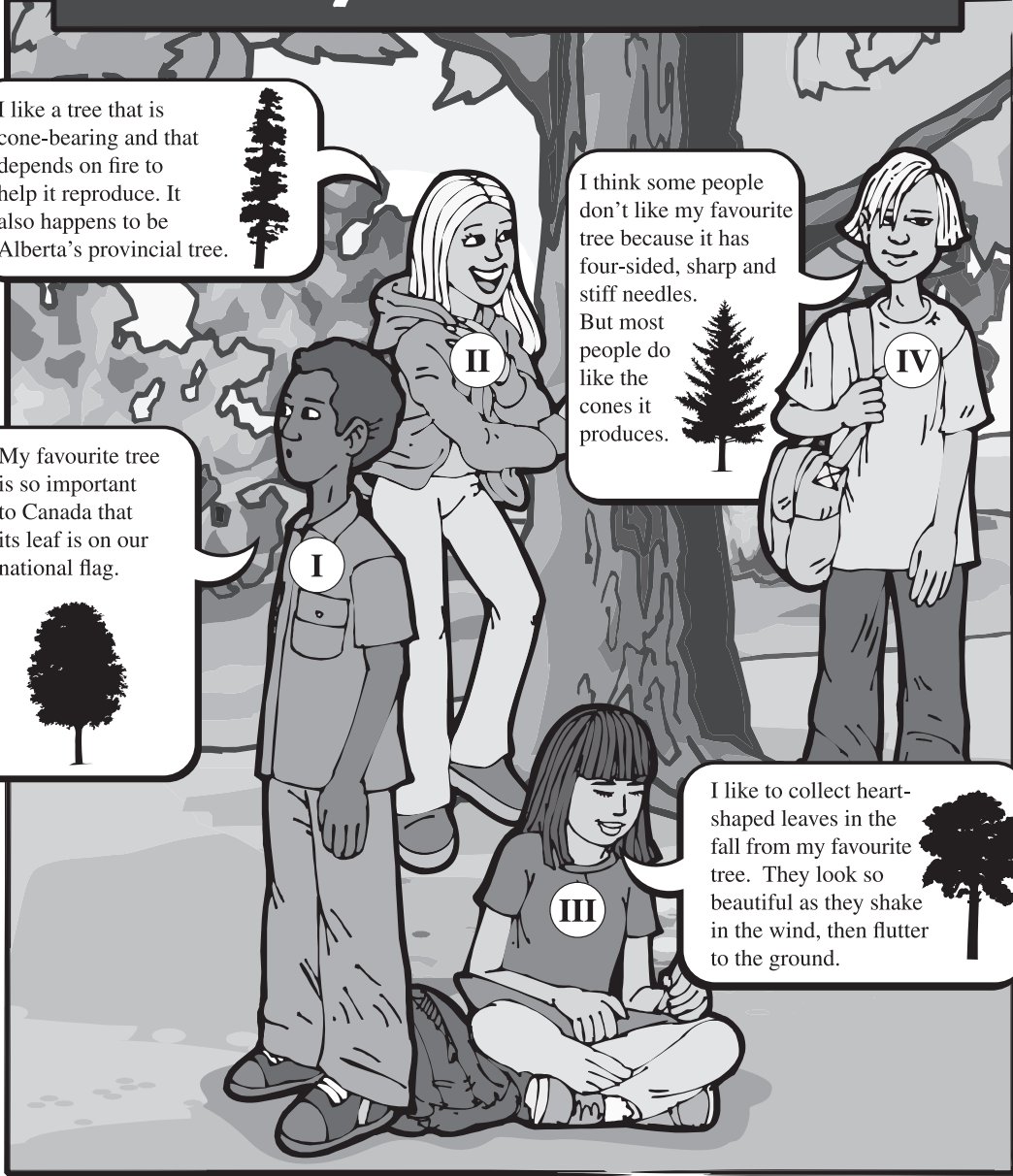
What is your favourite tree?

I like a tree that is cone-bearing and that depends on fire to help it reproduce. It also happens to be Alberta's provincial tree. 

I think some people don't like my favourite tree because it has four-sided, sharp and stiff needles. But most people do like the cones it produces. 

My favourite tree is so important to Canada that its leaf is on our national flag. 

I like to collect heart-shaped leaves in the fall from my favourite tree. They look so beautiful as they shake in the wind, then flutter to the ground. 



46. Which two students in the diagram above are referring to coniferous trees?

- A. Students II and III
- B. Students II and IV
- C. Students I and II
- D. Students I and III

47. Which of the following gases is produced as a result of photosynthesis?
- A. Oxygen
 - B. Nitrogen
 - C. Carbon dioxide
 - D. Carbon monoxide

Use the following information to answer question 48.

Statements About Forest Fires	
Statement 1	Forest fires eliminate dead brush and old trees. This results in new growth.
Statement 2	Forest fires destroy valuable raw resources that are necessary for the construction industry.
Statement 3	Forest fires kill pests such as pine beetles and spruce budworms, which spread from forest to forest and destroy trees.
Statement 4	Forest fires damage nature trails and destroy the beauty of the forest.

48. The statements that reflect the view that forest fires are necessary to the preservation of forest ecosystems are statements
- A. 1 and 3
 - B. 1 and 4
 - C. 2 and 3
 - D. 2 and 4

Use the following illustration to answer question 49.



49. Which of the following rows describes the type, shape, and margin of the leaf?

Row	Type	Shape	Margin
A.	Simple	Ovate	Serrated
B.	Simple	Cordate	Smooth
C.	Compound	Ovate	Serrated
D.	Compound	Cordate	Smooth

Use the following information to answer question 50.

Four speakers share their opinions about forests.



Speaker I

I think that forests should be preserved. I like to spend weekends hiking and bird-watching in the forest.

I know that selective cutting does not disturb wildlife and it allows the forest industry to produce products to meet the needs of people.



Speaker II

I purchased a property beside a forest because I want to live in a private area that has lots of wildlife. I like to have picnics while exploring the forest.



Speaker III

I believe everyone should have a home. That means we may need to remove some forests in order to expand our cities to build new subdivisions and parks.



Speaker IV

50. Which of the following two speakers have opinions that indicate that forests have important recreational value?
- A. Speakers I and II
 - B. Speakers I and III
 - C. Speakers II and III
 - D. Speakers III and IV

2010 Test Blueprint and Item Descriptions

The following blueprint shows the reporting categories and topics by which questions were classified on the 2010 Grade 6 Science Achievement Test.

Topic	Question Distribution by Reporting Category		Number (Percentage) of Questions
	Knowledge	Skills	
Inquiry and Problem Solving	0	11 (4, 6, 17, 20, 27, 30, 35, 37, 38, 42, 45)	11 Questions (22% of Total Test)
Air, Aerodynamics, and Flight	9 (1, 2, 5, 8, 9, 13, 14, 15, 16)	5 (3, 7, 10, 11, 12)	14 Questions (28% of Total Test)
Sky Science	4 (19, 21, 24, 25)	4 (18, 22, 23, 26)	8 Questions (16% of Total Test)
Evidence and Investigation	2 (28, 36)	5 (29, 31, 32, 33, 34)	7 Questions (14% of Total Test)
Trees and Forests	4 (39, 41, 44, 47)	6 (40, 43, 46, 48, 49, 50)	10 Questions (20% of Total Test)
Number (Percentage) of Questions	19 Questions (40% of Total Test)	31 Questions (60% of Total Test)	Total Test 50 Questions (100%)

The table below provides information about each question on the 2010 test: the keyed response, the difficulty of the item (the percentage of students who answered the question correctly), the reporting category, the topic, and the item description.

Question	Reporting Category	Key	Difficulty	Topic	Item Description
1	Knowledge	A	76.6	Aerodynamics & Flight	Recognize the airplane component on which elevators are found
2	Knowledge	A	83.8	Aerodynamics & Flight	Identify the downward and upward forces that influence airplane flight
3	Skills	B	80.7	Aerodynamics & Flight	Evaluate a situation and explain it using an understanding of the properties of air
4	Skills	D	72.6	Inquiry and Problem Solving	Evaluate a problem associated with a parachute design to determine a possible solution
5	Knowledge	B	60.6	Aerodynamics & Flight	Recognize that the flaps of an airplane are used to increase drag
6	Skills	C	51.7	Inquiry and Problem Solving	Analyze the results of an experiment and form a conclusion
7	Skills	C	70.7	Aerodynamics & Flight	Apply Bernoulli's principle to predict the outcome of an experiment
8	Knowledge	A	66.8	Aerodynamics & Flight	Recognize the characteristics of air that allow a solar kite to generate lift
9	Knowledge	C	47.3	Aerodynamics & Flight	Identify the function of an insect structure that is used in flight
10	Skills	D	79.5	Aerodynamics & Flight	Determine movement in an airplane caused by the elevators
11	Skills	C	56.4	Aerodynamics & Flight	Interpret force values to determine which aircraft is hovering
12	Skills	D	42.4	Aerodynamics & Flight	Infer the reason for differences in force of drag experienced by two different aircraft
13	Knowledge	D	76.4	Aerodynamics & Flight	Recognize a control surface and its function
14	Knowledge	A	48.2	Aerodynamics & Flight	State a process that does not require oxygen
15	Knowledge	C	81.8	Aerodynamics & Flight	Identify the structure that provides thrust in an airplane
16	Knowledge	B	49.8	Aerodynamics & Flight	Identify the characteristic of air that makes a diving bell functional
17	Skills	D	58.4	Inquiry and Problem Solving	Determine the month in which a given orientation of a constellation would occur

Question	Reporting Category	Key	Difficulty	Topic	Item Description
18	Skills	D	62.7	Sky Science	Evaluate data on the phases of the moon to predict the phase seen on given dates
19	Knowledge	C	59.1	Sky Science	Recognize the orientation of Earth (tilt) during summer in the Northern hemisphere
20	Skills	A	46.8	Inquiry and Problem Solving	Evaluate an experimental design to determine which variables are controlled
21	Knowledge	D	51.0	Sky Science	Relate the characteristic of reflecting light by an asteroid to that of a comet
22	Skills	D	75.4	Sky Science	Evaluate planetary data to determine a correct statement regarding those planets
23	Skills	D	59.8	Sky Science	Indicate the length of time it takes for the Earth to rotate a certain degree
24	Knowledge	B	74.9	Sky Science	Order celestial objects in relation to size
25	Knowledge	D	62.2	Sky Science	Identify the phase of the Moon based on the position the Earth, Moon and Sun
26	Skills	A	50.3	Sky Science	Evaluate graphs of shadow length to determine which represents data from the summer
27	Skills	A	59.6	Inquiry and Problem Solving	Identify the manipulated and responding variables in an experiment
28	Knowledge	B	69.8	Evidence and Investigation	Identify the correct classification of given fingerprints
29	Skills	B	82.3	Evidence and Investigation	Analyze a crime scene to determine a suspect's point of entry and exit
30	Skills	B	74.3	Inquiry and Problem Solving	Make an inference regarding the best location to find a particular piece of evidence at a crime scene
31	Skills	C	81.9	Evidence and Investigation	Analyze fabric samples to identify the fabric that matches the fabric left at a crime scene
32	Skills	A	72.6	Evidence and Investigation	Identify the appropriate characteristics of a hand writing sample that would be used in a comparison
33	Skills	D	64.3	Evidence and Investigation	Evaluate sets of tracks and determine which provides the least amount of information
34	Skills	A	63.8	Evidence and Investigation	Evaluate a crime scene diagram and identify an observation that can be made from the diagram

Question	Reporting Category	Key	Difficulty	Topic	Item Description
35	Skills	C	52.0	Inquiry and Problem Solving	Evaluate an experimental design to determine a modification that would improve the design
36	Knowledge	A	79.6	Evidence and Investigation	Identify the direction and speed of travel of footprints in a diagram
37	Skills	D	49.4	Inquiry and Problem Solving	Evaluate fabric data to determine which fabric is best used for a given purpose
38	Skills	C	61.4	Inquiry and Problem Solving	Analyze information about an experiment to identify the responding variable
39	Knowledge	A	80.6	Trees & Forests	Determine where the energy that drives the nutrient cycle comes from
40	Skills	B	72.3	Trees & Forests	Evaluate statements and graphs to determine the modern and historical patterns for use of forests
41	Knowledge	C	63.0	Trees & Forests	Identify the functions of a particular part of a tree
42	Skills	D	77.1	Inquiry and Problem Solving	Make a scientific conclusion based on experimental evidence
43	Skills	C	65.8	Trees & Forests	Infer an environmental factor that limits the growth of plants in the underbrush of a forest
44	Knowledge	A	70.1	Trees & Forests	Identify a list of organisms found in a forest that play a particular role
45	Skills	B	76.8	Inquiry and Problem Solving	Analyze a graph and determine a characteristic of a tree
46	Skills	B	73.8	Trees & Forests	Using a source, determine the characteristics of a coniferous tree
47	Knowledge	A	66.8	Trees & Forests	Recognize one of the products of photosynthesis
48	Skills	A	69.2	Trees & Forests	Analyze statements to support a particular point of view
49	Skills	C	53.6	Trees & Forests	Identify the type, shape, and margin of a given leaf
50	Skills	B	78.9	Trees & Forests	Evaluate statements to determine reasons why trees are valued for recreation