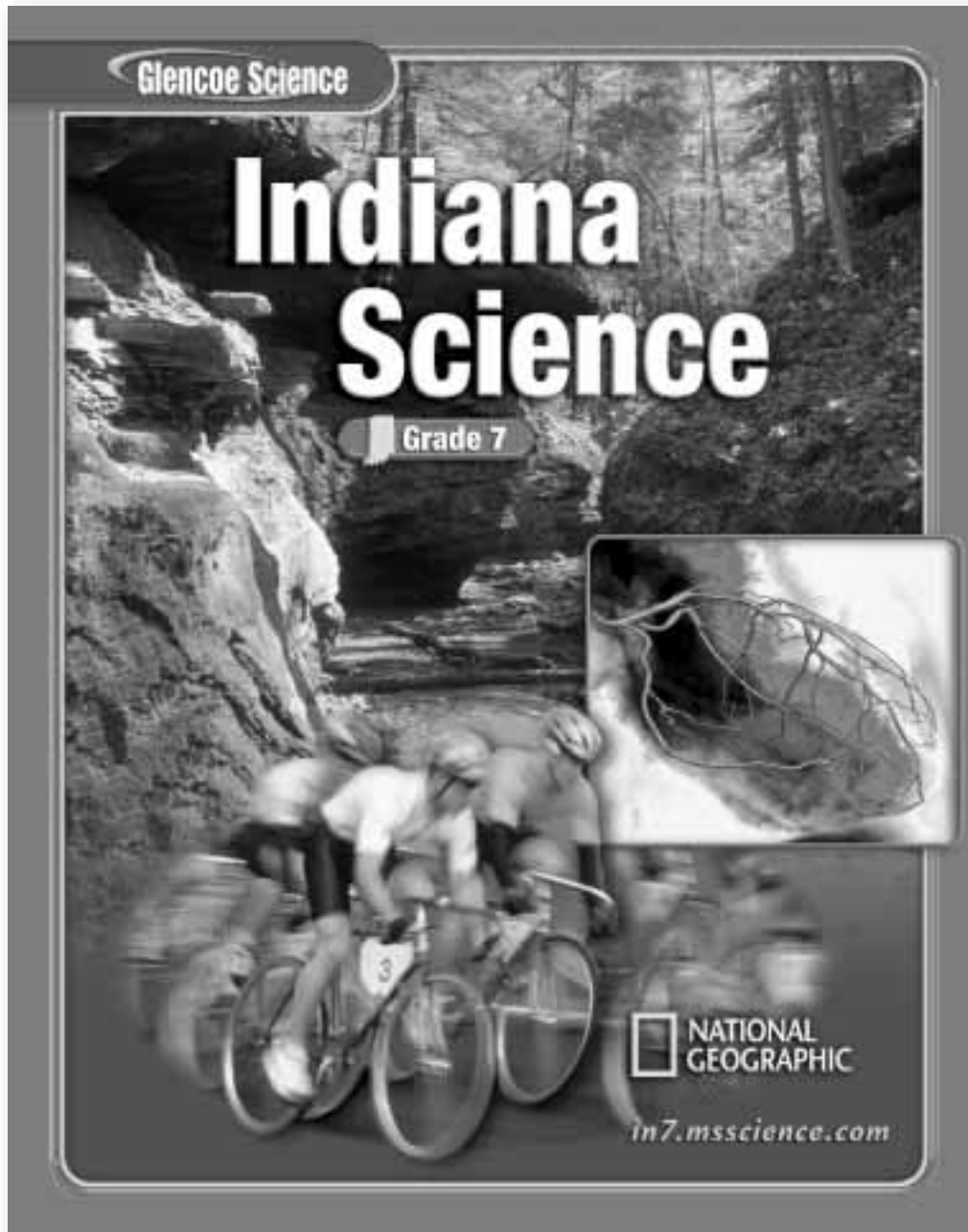


# Mastering the Grade 7 Indiana Science Standards



## Student Edition





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Send all inquiries to:  
Glencoe/McGraw-Hill  
8787 Orion Place  
Columbus, OH 43240-4027

ISBN 0-07-867057-8

Printed in the United States of America.

1 2 3 4 5 6 7 8 9 024 06 05 04

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# Introduction

## What is in this book?

**Welcome to the Student Edition of *Mastering the Grade 7 Indiana Science Standards*.**

There are two sections in this workbook:

- ***Task Regimen***

This section provides you with methods to tackle test questions. Using the methods in this section, you will learn how to use the process of elimination, how to identify important information in the tests' graphs, charts, and tables, as well as other skills that can help you succeed on tests. Carefully study the methods in this section before you begin the test questions in this workbook. Each task has an assignment for you to do on your own at home and one to do in class.

- ***Test Practice: ISTEP+ Review, Practice, and Preparation***

The questions in this section are designed to prepare you for the ISTEP+. The format of the questions found in these practice tests is very similar to the format of the questions found in the ISTEP+.

# Task Regimen

A unique three-part **Task Regimen** designed to maximize the benefits of using this workbook is presented in this section. Each of the three tasks is designed to help you identify challenges and improve your performance.

Each task has an assignment for you to do on your own at home and one to do in class. Often the homework and the in-class activities will be coordinated, so it is important that you concentrate on both equally.

## TASK

### At-Home Assignment

### In-Class Assignment

#### TASK 1

For each question you missed, find the pages in the textbook that cover the material and explain what specific information was needed to answer the question correctly. If you cannot find any helpful information in the textbook, write out three questions about the test question that you did not understand.

Work in a group to discuss any confusing questions and content areas. Then work through the confusing questions together.

#### TASK 2

For every incorrect question, go through each answer choice and explain why it is correct or incorrect. Include any tips or hints you noticed that helped you eliminate choices. Place a question mark beside any question you cannot figure out and bring it to class for discussion.

Your teacher will lead a discussion for each question. Share your ideas and observations with the class. Keep notes of the discussion to help your review.

#### TASK 3

Your teacher will provide you with a list of questions to work on. For each question, make observations and write down all of the information given in the test in the form of a graphic, a passage, or otherwise. Write the information directly onto the test.

Work in a group to discuss each question. Make sure to note the location in the textbook where helpful information was found.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 1** Which of these features protects researchers from having a few atypical results that may skew the conclusion for an entire experiment?
- A** accuracy
  - B** repetition
  - C** background research
  - D** precision
- 2** To explain an observation, hypotheses are sometimes developed from incomplete information and personal beliefs. Which of the following scientific methods are used to ensure the validity of a hypothesis?
- A** developing a valid relationship between hypothesis and observation
  - B** verifying experimental results independently
  - C** designing new experiments to test the hypothesis
  - D** all of the above
- 3** Mendel’s theory used “factors” to explain how traits, like flower color and seed type, are passed on in pea plants. Modern genetics research shows that Mendel’s ideas were \_\_\_\_\_.
- A** wrong
  - B** partially correct
  - C** correct
  - D** none of the above
- 4** \_\_\_\_\_, an African-American agricultural chemist, developed hundreds of derivative products such as flour, soap, and medicinal oils from peanuts and sweet potato.
- A** George Washington Carver
  - B** W.E.B. Du Bois
  - C** Ida Owens
  - D** Elijah McCoy

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 5** Why do engineers use expansion joints in designing bridges and rail systems?

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**6** Which of these energy sources produces the least air pollution?

- A coal
- B natural gas
- C nuclear energy
- D petroleum

**7** Which of the following is a benefit of satellite technology?

- A Satellites have completely replaced all other forms of communication.
- B Satellites are 100% reliable.
- C Predictions about hurricanes have become much more accurate and have saved many lives.
- D Ships that use satellite navigation systems are never lost at sea.

**8** Throughout human history, diseases and plagues have cost many human lives. Which has been the greatest benefit of mandatory childhood immunization?

- A developing a cure for AIDS
- B eliminating preventable diseases
- C preventing respiratory infections
- D improving nutrition

**9** The \_\_\_\_\_ system is used to represent digital information as 1s and 0s.

- A binary
- B decimal
- C hexadecimal
- D none of the above

**CONSTRUCTED-RESPONSE QUESTION**

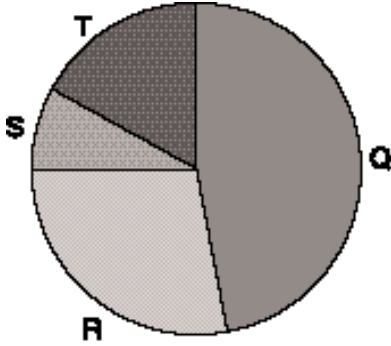
Write your answer to the following question on the lined answer sheet provided by your teacher.

**10** In the past, the United States and the former Soviet Union competed and cooperated to reach the goals of their space programs. Explain how the race to reach the Moon and the creation of the new *International Space Station* support this statement.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 1** Pierre did research on Earth's crust. He found that it is about 8% aluminum, 28% silicon, 47% oxygen, and 17% other elements. Which area of the graph represents silicon?

**A** Q  
**B** R  
**C** S  
**D** T

- 2** Which formula would you use to find the circumference of a circle?

**A**  $\pi r$   
**B**  $\pi r^2$   
**C**  $2\pi r^2$   
**D**  $2\pi r$

- 3** Your science class is using a terrarium for an experiment. To perform the experiment, a piece of equipment measuring  $30\text{ cm} \times 30\text{ cm}$  must be set in the bottom of the tank. If exactly  $800\text{ cm}^2$  must remain after the equipment is placed in the tank, which of the following tanks can be used for the experiment?

**A** 25 cm



68 cm

**B** 30 cm



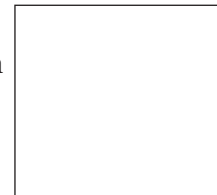
55 cm

**C** 35 cm



50 cm

**D** 40 cm



42.5 cm

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 4** The dimensions of a rectangular box are 2.3 cm, 4.95 cm, and 11.85 cm. How many significant digits should you include in the calculation of the volume of the box? Explain why.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 5** Clocks can be categorized by whether they are analog or digital. The clock in the picture is \_\_\_\_\_.



- A** analog
- B** digital
- C** both analog and digital
- D** neither analog nor digital

- 6** Suppose the volume of a cube equals its surface area. Which of the equations below describes this relationship?

- A**  $6s^2 = s^3$
- B**  $6s^3 = s^2$
- C**  $s^3 = s^2$
- D**  $6s = s^3$

- 7** What is the product of  $10^3 \times 10^5$ ?

- A** 100,000,000
- B** 10,000,000
- C** 100,000
- D** 1,000,000,000

- 8** An experiment was conducted to find the preferences for three types of drinks: A, B, and C. The results showed that 35% of the participants preferred drink A, 40% preferred drink B, and the rest preferred drink C. In a random sample of 100 people, what is the probability a person would choose drink C?

- A**  $\frac{1}{2}$
- B**  $\frac{1}{3}$
- C**  $\frac{1}{4}$
- D**  $\frac{2}{3}$

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 9** Suppose an experiment has two independent outcomes: X and Y. If the probability of event X is 0.4, how would you find the probability of event Y? Explain.

**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**Determining  
Lightbulb Lifespan**

Lightbulb	Lightbulb Lifespan (hours)
Q	33.5
R	37.7
S	41.3
T	39.2

Use the information in the table to answer numbers 10–12.

- 10** Which of the following is a good estimate of the average lifespan of the tested lightbulbs?

**A** 20 h  
**B** 30 h  
**C** 40 h  
**D** 50 h

- 11** Which of the following would best display these data?

**A** bar graph  
**B** pie graph  
**C** drawing  
**D** photograph

- 12** Which of the following correctly rounds the lifespan of lightbulb *R* to the nearest ones place?

**A** 33 h  
**B** 37 h  
**C** 38 h  
**D** 40 h

Tickets Sold  
for Friday's Concert

Group	Number of Tickets Sold
Adult Females	250
Adult Males	200
Student Females	300
Student Males	150
Senior Citizens	100

Total Number of Tickets Sold = 1,000

- 13** Which kind of graph would be the most appropriate for visually comparing the number of tickets that each group purchased for the concert?

**A** bar  
**B** line  
**C** pie  
**D** range

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 14** In a commercial for a new diet pill, the main argument in favor of the product presented by the company is a promotional statement from a famous movie star. Why should people be wary of buying this product?



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 1** Information is primarily stored digitally. A \_\_\_\_\_ is molded plastic disk containing digital data that is scanned by a laser beam for recorded sound and other digital information.
- A** compact disc  
**B** cassette tape  
**C** hard disk drive  
**D** monitor
- 2** How would the number 100,000 be expressed as an exponent?
- A**  $10^{10}$   
**B**  $10^5$   
**C**  $10^1$   
**D**  $10^3$
- 3** In 1992, \_\_\_\_\_ became the first African American woman in space.
- A** Ida B. Owens  
**B** Mae Jemison  
**C** Mary Styles Harris  
**D** Ruth Ella Moore
- 4** A reputable drug company is advertising a new drug on television. The spokesperson in the ad is a famous TV personality. The commercial also mentions that the drug has been approved by the FDA. Which of the following is the best reason the drug is safe to take?
- A** A TV personality would never promote anything that is unsafe.  
**B** The drug company is reputable.  
**C** The FDA has approved the drug's safety and effectiveness.  
**D** all of the above
- 5** In the binary system, 101 represents the number 5 in decimal system. Which of the following expressions shows how the binary number 101 converts into its equivalent decimal number?
- A**  $(1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$   
**B**  $(1 \times 2^2) + (1 \times 2^1) + (0 \times 2^0)$   
**C**  $(1 \times 10^2) + (0 \times 10^1) + (1 \times 10^0)$   
**D**  $(1 \times 10^2) + (1 \times 10^1) + (0 \times 10^0)$

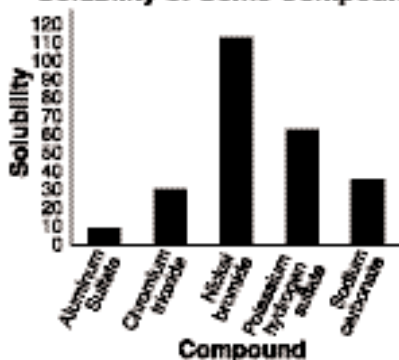
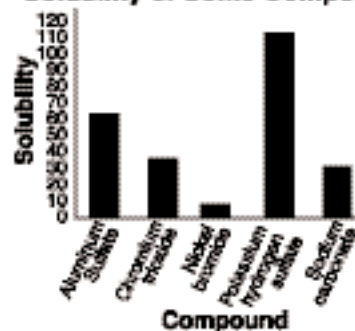
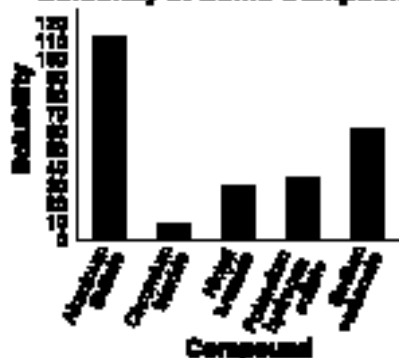
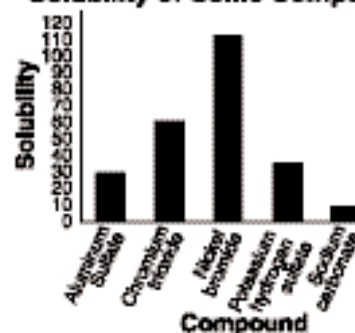
**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**Solubility of Some Compounds**

Compound	Solubility at 25°C (g/100g water)
Aluminum sulfate	31
Chromium trioxide	62
Nickel bromide	113
Potassium hydrogen sulfide	38
Sodium carbonate	7

- 6 The chart shows the amount of different compounds that can be dissolved in 100 g of water at 25°C. Which of these graphs best represents these data?

**A Solubility of Some Compounds****B Solubility of Some Compounds****C Solubility of Some Compounds****D Solubility of Some Compounds****CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 7 Explain the benefits and drawbacks of using pesticides on food crops.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**1** Based on its size, the Sun is classified as a \_\_\_\_\_.

- A** super giant
- B** black hole
- C** white dwarf
- D** medium star

**2** Where is our solar system in relation to the rest of the Milky Way Galaxy?

- A** near the center
- B** near the edge
- C** above the ecliptic plane
- D** below the ecliptic plane

**3** Which is the best estimate for the number of galaxies to be found in the universe?

- A** hundreds
- B** millions
- C** thousands
- D** billions

**4** Which star is closest to our solar system?

- A** Sirius
- B** Rigel
- C** Alpha Centauri
- D** Deneb

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**5** From their birth, stars of different sizes pass through different life cycles. Presently the Sun is in the main stage. As the Sun evolves, what other stages will it pass through?



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 6** The Sun and the star Alpha Centauri shine with about the same brightness, yet the Sun appears to us to be several hundred times brighter than Alpha Centauri. Which of these is the *most* likely explanation for this?
- A** Alpha Centauri is a larger star than the sun.
  - B** The Sun generates energy through the process of fusion.
  - C** The Sun is much closer to Earth than Alpha Centauri.
  - D** Light from Alpha Centauri is blocked by the moon.
- 7** Light from the Sun takes \_\_\_\_\_ minutes to reach the Earth.
- A** 10
  - B** 8
  - C** 15
  - D** 7
- 8** Alpha Centauri, the star closest to our solar system, is approximately \_\_\_\_\_ light years away.
- A** 4.3
  - B** 5.3
  - C** 7.9
  - D** 153.8
- 9** Compared to the nearest star (after the Sun), the Sun is \_\_\_\_\_ of times closer to Earth.
- A** billions
  - B** thousands
  - C** millions
  - D** hundreds

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

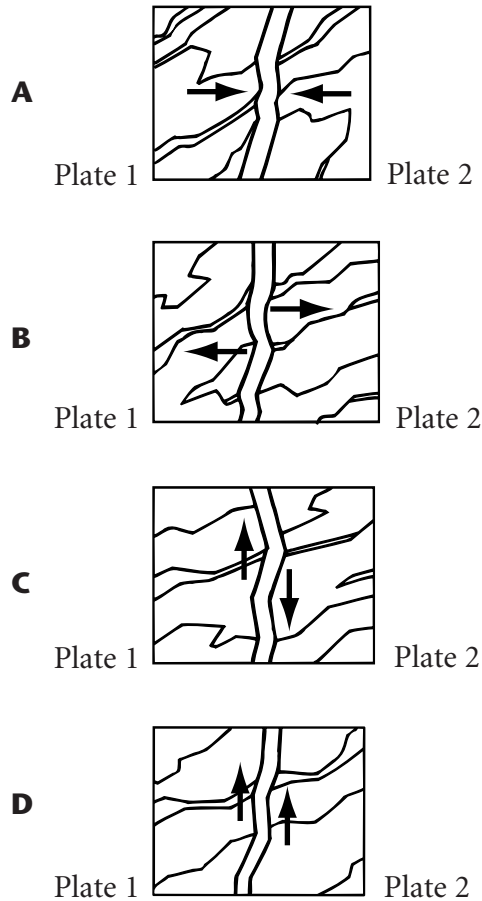
- 10** Studying the light from distant galaxies and stars has been described as looking back into the past. Explain how.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 11** A volcanic eruption is a dramatic and powerful event. A volcanic eruption can positively affect the environment by \_\_\_\_\_.
- A** increasing the number of islands
  - B** increasing the amount of acid rain
  - C** decreasing air quality
  - D** decreasing the number of inhabited villages
- 12** After heat rises from the surface of the Earth, the gases in the atmosphere reflect the heat back to the Earth. This process is called \_\_\_\_\_.
- A** convection
  - B** the greenhouse effect
  - C** radiation
  - D** conduction
- 13** The Hawaiian Islands are mountains that formed over a hot spot. Based on their method of formation, what kind of mountains are the Hawaiian Islands?
- A** fault-block mountains
  - B** folded mountains
  - C** upwarped mountains
  - D** volcanic mountains

- 14** Some mountains are formed by the collision of two tectonic plates. If the arrows indicate the direction of plate movement, which diagram below shows a situation that would probably result in the formation of such mountains?

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**1** Volcanic eruptions can blast particles and various chemical compounds high into the atmosphere. These materials can reduce the amount of solar radiation that reaches Earth's surface. As a result, you would expect that after a major volcanic eruption \_\_\_\_\_.

- A** Earth's average temperature would increase
- B** Earth's average temperature would decrease
- C** global climates would become warm and dry
- D** none of the above

**2** If the California Current stopped flowing, the temperature in San Francisco would probably be \_\_\_\_\_.

- A** warmer
- B** cooler
- C** the same
- D** more variable



**3** The most likely cause of the Gulf Stream in the Atlantic Ocean is the motion caused by \_\_\_\_\_.

- A** wind only
- B** gravitational effects of the Moon
- C** wind and Earth's rotation
- D** different densities of water in the Atlantic

**4** Although volcanic eruptions can destroy many acres of land, including plants and wildlife, the ash that settles on the ground afterward helps by \_\_\_\_\_.

- A** killing off herbivores
- B** making the land more fertile
- C** killing off predators
- D** none of the above

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

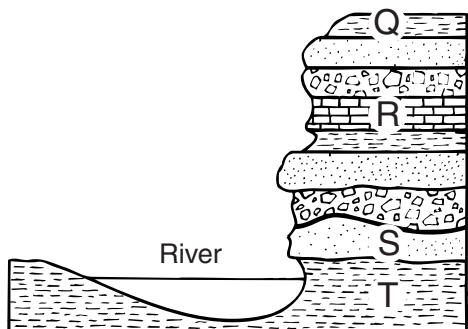
**5** Water in the ocean is constantly in motion. Name two factors that create ocean currents.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

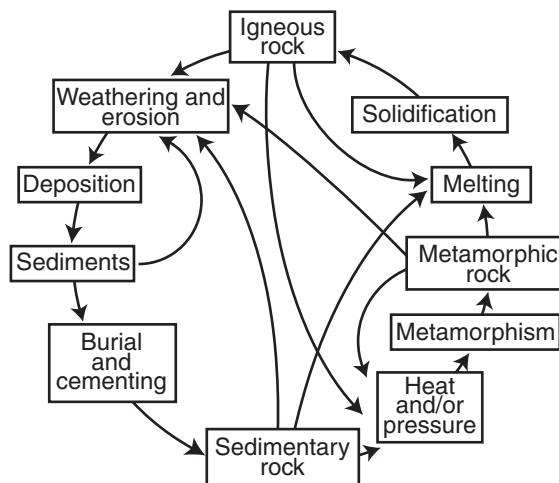
- 6** Water flowing down the side of a slope that carries away plants and soil and creates a groove called a channel is an example of \_\_\_\_\_.

- A** sheet erosion
- B** rill erosion
- C** gully erosion
- D** sedimentary erosion



- 7** The diagram above is a geological cross-section of an area where a river has exposed a cliff of undisturbed rock layers. According to the diagram, which rock layer is the oldest?

- A** Q
- B** R
- C** S
- D** T



- 8** Which of the following statements is **LEAST** supported by information presented in the diagram above?

- A** Igneous rocks form by the solidification of magma.
- B** The burial of sediments produces sedimentary rock.
- C** Erosion produces metamorphic rock.
- D** Igneous rock is eroded into sediments.

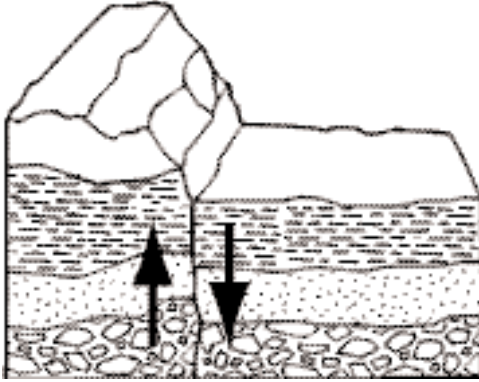
**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 9** Describe how sediments of sand and smaller particles (including the remains of organisms) buried deep enough can form solid rock.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 10** What process is taking place in the picture above?
- A** soil erosion
  - B** river flooding
  - C** iceberg creation
  - D** mountain building
- 11** All of these are major causes of erosion EXCEPT \_\_\_\_\_.
- A** water
  - B** gravity
  - C** sunlight
  - D** wind

- 12** What is the purpose of using carbon-14 methods on samples from archeological sites?

- A** to preserve them
- B** to determine their age
- C** to dig them out of the ground
- D** to clean them

After	Amount Left
0	All
5 minutes	$\frac{1}{2}$
10 minutes	$\frac{1}{4}$
15 minutes	?

- 13** These data show how much of a radioactive sample is left after each half-life. The samples' half-life is 5 minutes. If everything remains the same, what fraction of the radioactive isotope will be left after 15 minutes?

- A** 0
- B**  $\frac{1}{16}$
- C**  $\frac{1}{8}$
- D**  $\frac{1}{3}$

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 14** Similar fossils and rock formations have been found in western Africa and eastern South America. Explain how this information can be used to support the theory of plate tectonics.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 1** Galaxies are made up of numerous stars. Which below is the best estimate for the number of stars typically found in a galaxy?
- A** thousands
  - B** billions
  - C** millions
  - D** hundreds
- 2** About 66 million years ago, \_\_\_\_\_ may have led to the extinction of many organisms on Earth. Scientists believe that this event may have been caused by an asteroid impact.
- A** rapid warming of Earth
  - B** rapid cooling of Earth
  - C** change in Earth's orbit
  - D** none of the above
- 3** Volcanoes are caused by the movement of \_\_\_\_\_.
- A** ocean currents
  - B** Earth's magnetic field
  - C** molten material within Earth
  - D** the solar winds
- 4** El Niño is the name for unusually \_\_\_\_\_ ocean conditions that develop along the west coast of South America every few years. This effect has caused a change in climate as far as Asia and North America.
- A** warm
  - B** wet
  - C** cold
  - D** dark

**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**5** The \_\_\_\_\_ emissions associated with large volcanoes can affect the local climate.

- A** toxic gas
- B** radioactive
- C** hot water
- D** carbon dioxide

**6** A sudden tectonic plate shift would cause which of the following events?

- A** an earthquake
- B** a typhoon
- C** a hurricane
- D** a snowstorm

**7** Compaction describes the process of \_\_\_\_\_.

- A** erosion of canyons by water
- B** formation of mountains
- C** rock formation from sediments and the fossils of dead organisms
- D** none of the above

**8** Sedimentary rock, when buried deep enough, can be reformed by \_\_\_\_\_ to different types of rock.

- A** fire and water
- B** wind and ice
- C** heat and pressure
- D** erosion

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**9** Although the thousands of layers of sedimentary rock can give clues to the age of Earth, the youngest layers are not always on top. Explain why.



**Standard 3 (7.3.11–7.3.14)** *The Physical Setting***MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**1** Mercury is closer to the Sun than Earth is. What might be the reason that there are no living ecosystems on Mercury?

- A** Mercury is too small a planet.
- B** Mercury is too hot.
- C** Mercury needs a moon to have life on it.
- D** Mercury is too cold.

**2** Which of the following would absorb the most sunlight?

- A** a white T-shirt
- B** a yellow T-shirt
- C** a black T-shirt
- D** an orange T-shirt

**3** Electromagnetic waves have all of the following characteristics EXCEPT \_\_\_\_\_.

- A** wavelength
- B** amplitude
- C** frequency
- D** matter

X-ray waves	Water waves
Radio waves	Sound waves
Light waves	Earthquake waves

**Table A****Table B**

**4** The waves in Table A are different from the waves in Table B because only the waves in Table A transfer energy by \_\_\_\_\_.

- A** passing wavelengths
- B** traveling through Earth's crust
- C** vibrating electric and magnetic fields
- D** making particles of matter move

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**5** Because of Earth's position in the solar system, it actually receives very little sunlight compared to the total radiation emitted from the Sun. Describe what would happen to Earth if it were as close to the Sun as Mercury.

**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- |   |   |
|---|---|
| <p><b>6</b> Which of the following is the most likely reason why foods with a high level of acidity take longer to spoil?</p> <p><b>A</b> Bacteria dislike foods that taste sour, and prefer to eat things that taste bitter.</p> <p><b>B</b> Acids turn litmus paper red, and most bacteria have an aversion to that color.</p> <p><b>C</b> The acid prevents the growth of bacteria by inhibiting chemical reactions.</p> <p><b>D</b> none of the above</p> | <p><b>7</b> All of the following are properties of an acid EXCEPT _____.</p> <p><b>A</b> producing hydrogen ions in solution</p> <p><b>B</b> burning a hole through metal</p> <p><b>C</b> tasting sour</p> <p><b>D</b> feeling slippery</p> |
|---|---|



- 8** Antacids contain bases that react in your stomach to relieve indigestion. In the reaction above,  $\text{NaHCO}_3$  reacts with the strong hydrochloric acid,  $\text{HCl}$ , to form a salt, carbon dioxide, and water. This type of reaction is called \_\_\_\_\_.
- A** neutralization
- B** oxidation
- C** dehydration
- D** titration

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 9** Why does milk spoil faster at room temperature than when it is refrigerated?

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**10** Sweetened tea is a(n) \_\_\_\_\_.

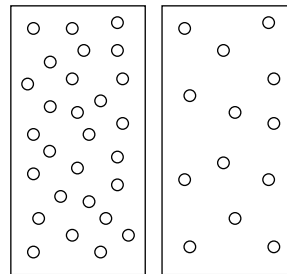
- A mixture
- B gas
- C compound
- D element

**11** You can mechanically separate sugar from sand because sugar is \_\_\_\_\_ and sand is not.

- A malleable
- B ductile
- C soluble in water
- D acidic

**12** When a large spoonful of sugar is stirred into a cup of hot water, what happens to the sugar?

- A The sugar reacts with the water.
- B The sugar dissolves.
- C The sugar disappears.
- D The sugar boils.



Seawater at 20°C      Freshwater at 20°C

**13** Which statement BEST describes a main difference between seawater and freshwater?

- A Freshwater is denser than seawater.
- B Seawater and freshwater have about equal densities.
- C Seawater boils faster than freshwater.
- D Seawater is denser than freshwater.

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**14** Explain how the pH scale identifies acidic and basic nature of compounds. On this scale, how do you identify a neutral compound?

**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**15** Convection is the transfer of energy by the motion of the heated particles in a fluid. Which statement best describes an example of convection?

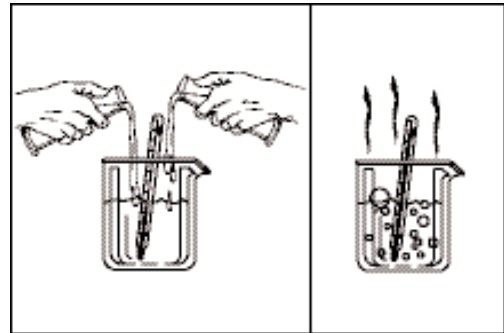
- A** a shirt heated by an iron
- B** a puddle of rainwater heated by sunlight
- C** a dark-color car heated by sunlight
- D** warm air rising in the atmosphere

**16** All of the following are methods by which heat energy is transferred from a warmer object to a cooler one EXCEPT \_\_\_\_\_.

- A** conduction
- B** insulation
- C** convection
- D** radiation

**17** What type of energy transfer occurs when the heat in the sand transfers to a person's feet?

- A** convection
- B** conduction
- C** radiation
- D** kinetic



**18** What can you conclude about the above reaction?

- A** It releases heat.
- B** It releases light.
- C** It absorbs heat.
- D** It needs air.

**CONSTRUCTED-RESPONSE QUESTION**

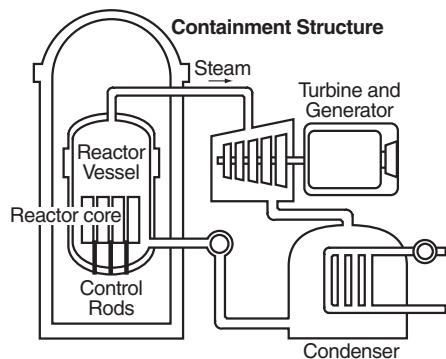
Write your answer to the following question on the lined answer sheet provided by your teacher.

**19** In a nuclear reactor, energy is created through the splitting, or fission of atoms. Which nuclear reaction occurs in the sun and other stars to generate energy? Explain the process of this reaction.



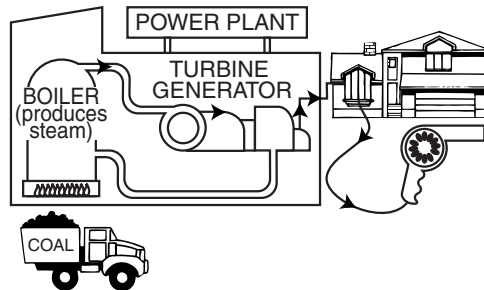
**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



**1** The diagram shows a typical nuclear power plant. In which part of the power plant is the electricity produced?

- A containment structure
- B control rods
- C reactor vessel
- D turbine and generator



**2** Based on the diagram above, which of the following is the correct sequence of energy changes needed to produce energy for the hair dryer?

- A Heat → Mechanical → Chemical → Electrical
- B Chemical → Heat → Mechanical → Electrical
- C Electrical → Mechanical → Heat → Chemical
- D Chemical → Mechanical → Heat → Electrical

**3** Most of the electrical energy used by a toaster is converted to \_\_\_\_\_.

- A heat energy
- B light energy
- C mechanical energy
- D chemical energy

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**4** By rubbing a piece of fur and a plastic rod, explain how the rod acquires an electrical charge.

**GO ON** 

**Standard 3 (7.3.15–7.3.18)** *The Physical Setting***MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**Information About Some Bulbs**

Bulb Type	100W Incandescent	23W Compact Fluorescent
Life of Bulb	750 hours	10,000 hours
Number of Bulbs Needed	About 5 over 3 years	1 over 10 years
Total Cost of Electricity (\$ cents/kilowatt-hour)	\$35.04	\$8.05
Your Total Cost Over 3 Years	\$20.54	\$19.08

- 5** About how much does a consumer save over three years by using a fluorescent bulb in place of an incandescent bulb?
- A** \$10.50  
**B** \$19.00  
**C** \$20.50  
**D** \$30.50

- 6** Which of the following is NOT a problem usually associated with nuclear energy?
- A** disposal of radioactive waste  
**B** thermal pollution of rivers and streams  
**C** environmental damage from mining and extraction of uranium  
**D** emission of carbon dioxide into the atmosphere
- 7** The waste from nuclear power plants must be handled according to special rules. Why are these precautions taken?
- A** to prevent radiation from leaking out  
**B** to prevent people from slipping and falling  
**C** to prevent people from being tired at work  
**D** to prevent competition from other plants

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

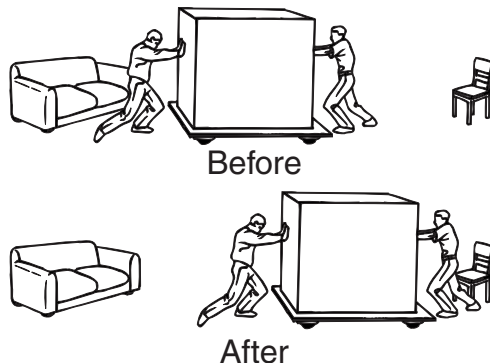


- 8** The burning of fossil fuels such as coal, oil, and natural gas generates most of the world's electricity. Burning fossil fuels is a major cause of air pollution. The world's supply of fossil fuels is limited. Three alternative methods for generating electricity are pictured above. Explain the similarities and differences among these methods.

**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 9** The pictures above show a large box being pushed in opposite directions by two men. The box changed its position in the room because \_\_\_\_\_.
- A** the opposing forces were balanced
  - B** the smooth floor created no friction
  - C** the man on the left side applied more force than the man on the right side
  - D** the man on the right side applied more force than the man on the left side

- 10** Which of the following is an example of balanced forces acting on an object?
- A** an acorn falling from a tree
  - B** a car moving at a constant speed of 55 m/h
  - C** a motorcycle changing speed from 50 m/h to 70 m/h
  - D** a truck slowing down as it approaches a red light

- 11** Instantaneous speed is the rate of motion at an instant in time. If an object's instantaneous speed does not change over time, then \_\_\_\_\_.
- A** the object is quickly speeding up
  - B** the object is very gradually slowing down
  - C** the object is moving at a constant speed
  - D** the object has returned to its beginning position

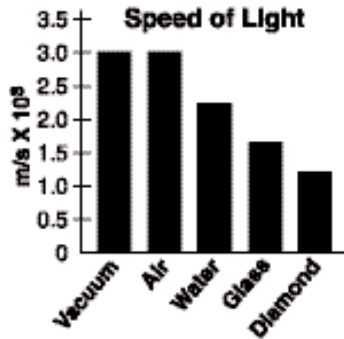
**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 12** State Newton's first law of motion.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



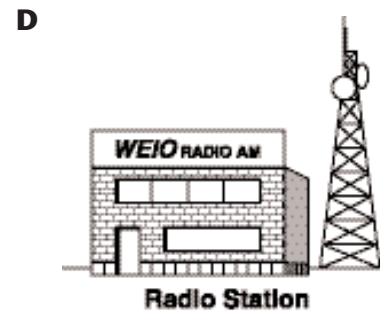
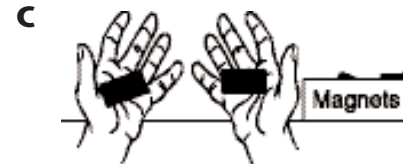
- 13** According to the graph, the speed of light in a vacuum is nearly twice as fast as the speed of light in \_\_\_\_\_.

**A** air  
**B** a diamond  
**C** glass  
**D** water

- 14** A translucent material is one that allows light to pass through but diffuses it so that objects on the other side cannot be distinguished. According to this definition, which of these is translucent?

**A** cardboard  
**B** waxed paper  
**C** glass  
**D** wood

- 15** Electromagnetic waves consist of an electric field and a magnetic field. Which of these produces electromagnetic waves?

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 16** How does a change in temperature affect the speed of sound in water?

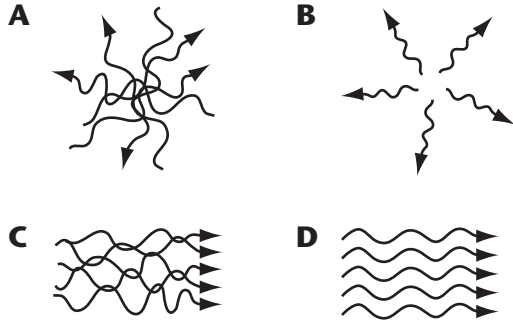
**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**1** Infrared detectors can detect hidden things that give off heat. Which of the following would be a good use for an infrared detector?

- A** finding algae in a freshwater stream
- B** sending smoke signals to communicate with other people
- C** determining the temperature of a preheated oven
- D** finding people who are buried by an avalanche

**2** Light rays have direction and can be depicted with arrows. Which of the following shows what coherent light looks like?



**3** Sometimes, people in the desert see what appears to be water. This phenomenon, known as a mirage, happens because \_\_\_\_\_.

- A** heated sand refracts light
- B** the sun transmits blue-light wavelengths
- C** light refracts through air of different densities
- D** their eyes' cones and rods are heat sensitive

**4** The human eye can see only a very small portion of the electromagnetic spectrum. These wavelengths of visible light \_\_\_\_\_.

- A** are shorter than X rays
- B** contain the visible color spectrum
- C** are longer than microwaves
- D** all of the above

**CONSTRUCTED-RESPONSE QUESTION**

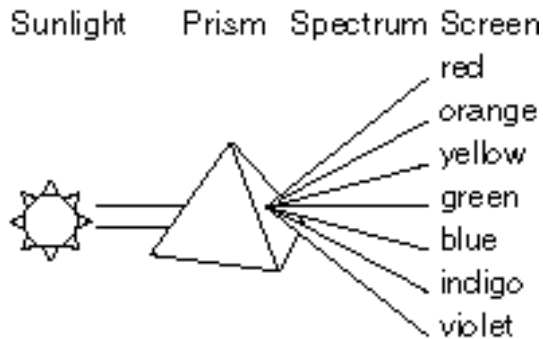
Write your answer to the following question on the lined answer sheet provided by your teacher.

**5** The human eye detects light using specialized cells that look like rods and cones. What is the difference between the functions of rod cells and cone cells?

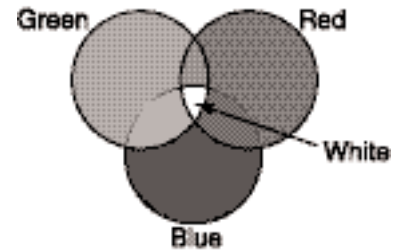
**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 6** A prism separates sunlight into the colors of the spectrum by \_\_\_\_\_.
- A** absorbing certain wavelengths and transmitting others
  - B** reflecting each wavelength in a different direction
  - C** reflecting each wavelength a different amount
  - D** refracting each wavelength a different amount
- 7** What causes a stop sign to appear red?
- A** It absorbs red light.
  - B** It reflects red light.
  - C** It transmits red light.
  - D** It reflects all colors except red.



- 8** A color television has red, green, and blue electron “guns”. When mixed correctly, they can produce any color on the screen. What colors should be mixed to produce the color yellow?
- A** red and green
  - B** red and blue
  - C** blue and green
  - D** red, green, and blue
- 9** Which of the following electromagnetic waves has the highest frequency?
- A** gamma waves
  - B** visible light
  - C** infrared waves
  - D** radio waves

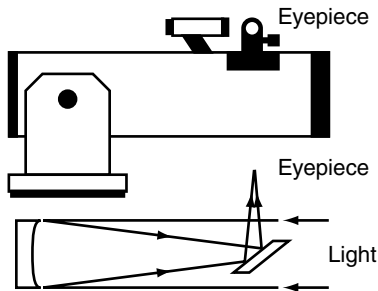
**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 10** Explain why humans cannot see infrared radiation.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 11** The diagram shows a reflecting telescope similar to the one used by Sir Isaac Newton. This structure can be used to study distant stars and galaxies because \_\_\_\_\_.
- A** it gathers light with a large convex lens, then magnifies the image with a small convex lens
  - B** it gathers light with a large concave lens, then magnifies the image with a small convex lens
  - C** it gathers light with a large convex mirror, then magnifies the image with a small convex lens
  - D** it gathers light with a large concave mirror, then magnifies the image with a small convex lens

- 12** The medical profession recently has made remarkable progress in the field of laser surgery. One example is the use of lasers to \_\_\_\_\_.
- A** power operating rooms
  - B** clone sheep
  - C** reshape the cornea
  - D** sterilize surgical instruments

TELESCOPE   MICROSCOPE   CAMERA
---------------------------------

- 13** Which of these belongs with the group above?
- A** optical instruments
  - B** near-sightedness
  - C** far-sightedness
  - D** ultraviolet rays

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

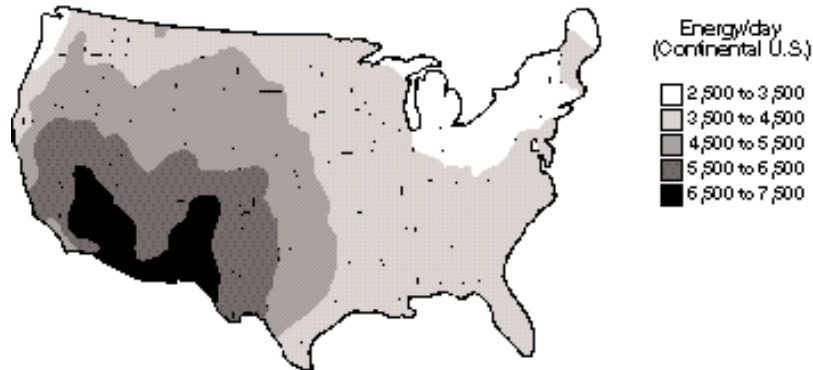
- 14** By describing the structure of the eye, explain how a cat can see a bird.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**Potential Power Generated by Solar Energy**



- 1** One disadvantage of using solar energy to generate electricity is that the number of hours of available sunlight isn't the same all over Earth. Which region of the United States has the greatest potential for producing electricity from solar energy?
- A** northwest
  - B** midwest
  - C** northeast
  - D** southwest

- 2** The sun emits which of the following types of electromagnetic radiation?

- A** visible light
- B** infrared light
- C** ultraviolet light
- D** all of the above

- 3** Which of the following reactions or processes generates heat?

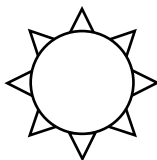
- A** respiration
- B** friction
- C** fusion
- D** all of the above

## MULTIPLE-CHOICE QUESTIONS

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 4** Nonrenewable resources are natural resources that cannot be replaced quickly by nature when they are depleted. Which of these is a nonrenewable resource?

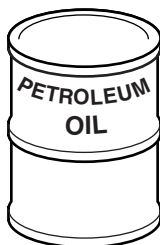
A



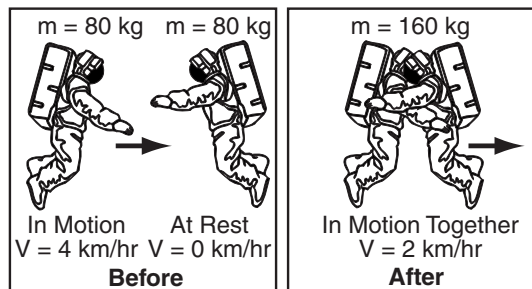
B



C



D none of the above



- 5** According to the illustrations, what happens when two astronauts collide in space?

- A Their kinetic energy increases.  
 B Their velocity increases.  
 C Their momentum is conserved.  
 D Their potential energy increases.

- 6** When a sound wave reflects off a hard surface, it is called \_\_\_\_\_.

- A a frequency  
 B an echo  
 C the Doppler effect  
 D a beat

## CONSTRUCTED-RESPONSE QUESTION

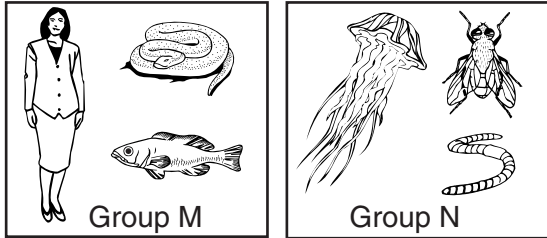
Write your answer to the following question on the lined answer sheet provided by your teacher.

- 7** In air, sound travels at the speed of 343 m/s at room temperature. How is the speed of sound affected in water?



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



**1** The animals in Group M are different from the animals in Group N because only the animals in Group M \_\_\_\_\_.

- A have body symmetry
- B have a backbone
- C are able to reproduce
- D are invertebrates

**2** During the winter when temperatures drop, many animals' body temperatures and breathing rates greatly reduce. This is called \_\_\_\_\_.

- A migration
- B hibernation
- C courtship
- D submission

**3** The scientific name for a wolf is *Canis Lupis*. What does the second word in the name represent?

- A genus
- B kingdom
- C specific epithet
- D domain name

**4** The most conclusive way to classify three different mammals would be to compare their \_\_\_\_\_.

- A teeth
- B fur
- C DNA
- D behavior

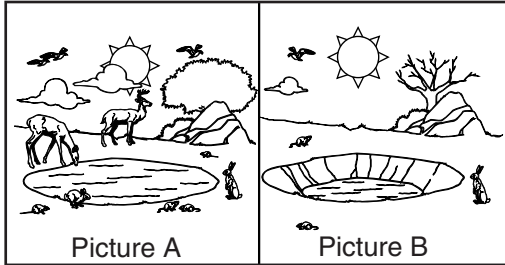
**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**5** Explain why you would place both a dog and a wolf in the same family.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 6** The ecosystem in Picture A is healthy while the ecosystem in Picture B is not. What seems to be needed to help the organisms in Picture B survive?

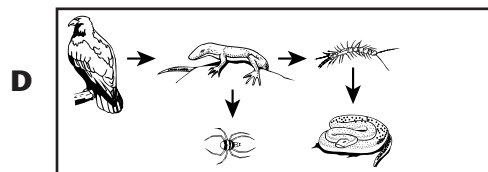
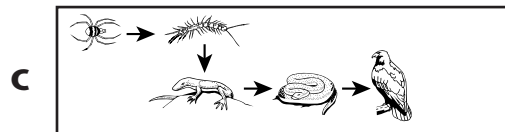
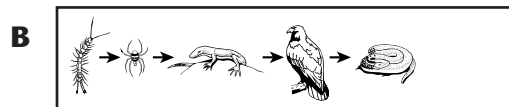
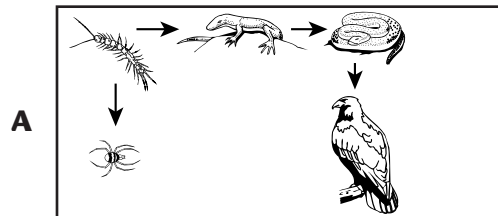
**A** more sunny days  
**B** more water  
**C** fewer predators  
**D** more wind

- 7** Which is the best definition of a pioneer species?

**A** the last organisms to move into an ecosystem  
**B** usually carnivores  
**C** the first organisms to move into an ecosystem  
**D** species found only in the western United States.

Animal	What it Eats
Spider	Centipede
Lizard	Centipede
Hawk	Snake
Snake	Lizard

- 8** Children at the Lackawanna Summer Camp made a list of animals they saw in the forest around them and what the animals ate. Which of the following food webs represents the part of the forest ecosystem that the children observed?

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 9** In an ecosystem, there are plants, herbivores (plant eaters), and carnivores (meat eaters). Explain how all of these organisms are dependent on plants for food, even if they don't eat plants themselves. Draw a food chain as part of your explanation.

**GO ON**

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**Record of Fruit Fly Experiment**

Male Eye Color	Female Eye Color	Number of Offspring	
		Red Eyes	White Eyes
Red	Red		
White	Red		
Red	White		
White	White		

- 10** The chart above was made to record data from an experimental investigation of inherited traits in fruit flies. This experiment probably tests which of the following hypotheses?
- A** Females with white eyes lay eggs sooner than females with red eyes.
  - B** Fruit fly eye color is controlled by a sex-linked gene.
  - C** Females with red eyes do not lay eggs.
  - D** White-eyed females only breed with white-eyed males.

- 11** Which of the following does not result in offspring that are genetically identical to the parent?
- A** budding
  - B** asexual reproduction
  - C** sexual reproduction
  - D** fission
- 12** During sexual reproduction, a male sperm cell merges with a female ovum. These sex cells are each \_\_\_\_\_.
- A** immature
  - B** diploid
  - C** haploid
  - D** flagellated

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 13** Explain the similarities and differences among a zygote, an embryo, and a fetus.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**14** Which of the following lists the stages of mitosis in the correct order?

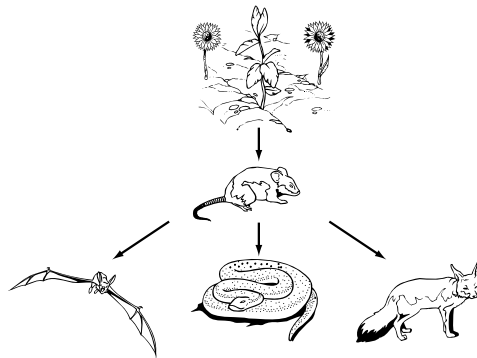
- A** metaphase, anaphase, prophase, telophase
- B** anaphase, telophase, prophase, metaphase
- C** telophase, anaphase, metaphase, prophase
- D** prophase, metaphase, anaphase, telophase

**15** Which of the following does not occur in plant cell mitosis, but does occur in animal cell mitosis?

- A** spindle fibers form
- B** centrioles form
- C** cell wall forms
- D** cell plate forms

**16** During mitosis, DNA is copied and passed on to new cells. In which stage of the cell cycle is DNA copied?

- A** telophase
- B** metaphase
- C** prophase
- D** interphase



**17** If more mice were added to a region, there would be more food for each of the following EXCEPT \_\_\_\_\_.

- A** plants
- B** bats
- C** snakes
- D** foxes

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**18** The cells in our bodies perform many functions. Describe some of the things that our cells do and some of the resources that cells require in order to perform these functions.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**1** The inside of the cell has many \_\_\_\_\_ for carrying out specific life processes.

- A** tissues
- B** nuclei
- C** organelles
- D** chromosomes

**2** An organelle responsible for transforming energy in the cell is the \_\_\_\_\_.

- A** nucleus
- B** DNA
- C** mitochondria
- D** cytoplasm

**3** A cell's cytoplasm will perform all of these functions EXCEPT \_\_\_\_\_.

- A** directing the cell's activities
- B** containing the cell's framework
- C** containing many chemical reactions
- D** housing the cell's different organelles

**4** Materials enter and leave the nucleus through openings in its \_\_\_\_\_.

- A** organelles
- B** membrane
- C** DNA
- D** chromatin

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**5** A student who is accustomed to running one or two miles runs five miles one afternoon and complains of pain in his leg muscles. The student's coach explains that the pain is caused by lactic acid. How did lactic acid get into the student's leg muscles and why did it only happen on the one afternoon?



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**6** Which of these can a human being live without for the least amount of time?

- A** water
- B** food
- C** oxygen
- D** carbon dioxide

**7** Though they do not eat other things the way animals do, plants still need food to survive. Where does a plant get energy?

- A** soil
- B** sunlight
- C** water
- D** oxygen

**8** In general, calcium and phosphorus benefit bones most by \_\_\_\_\_.

- A** helping produce vitamin C
- B** helping produce red blood cells
- C** keeping them strong
- D** keeping them soft and spongy

**9** A squirrel eats sunflower seeds at a feeder in order to gain energy to \_\_\_\_\_.

- A** move
- B** reproduce
- C** grow
- D** all of the above

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**10** Plants need to obtain the right amount of water for proper growth. Design an experiment using five tomato seedlings in plant pots to determine the proper amount of water they need for optimum growth.



**MULTIPLE-CHOICE QUESTIONS**

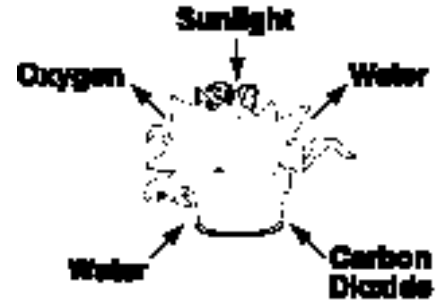
Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 11** Plants consist of many structures. Which of the following structures is most involved during photosynthesis?

A xylem  
 B cambium  
 C chloroplasts  
 D roots

- 12** Margareta has learned that plants take in water ( $H_2O$ ) and carbon dioxide ( $CO_2$ ) to produce sugar ( $C_6H_{12}O_6$ ) and give off oxygen ( $O_2$ ). Which chemical equation represents photosynthesis?

A  $O_2 + H_2O \rightarrow C_6H_{12}O_6 + CO_2$   
 B  $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$   
 C  $C_6H_{12}O_6 + O_2 \rightarrow CO_2 + H_2O$   
 D  $CO_2 + O_2 \rightarrow C_6H_{12}O_6 + H_2O$



- 13** Which statement best describes the diagram above?

A Plants absorb oxygen and release water.  
 B Plants release carbon dioxide and absorb sunlight.  
 C Plants take in but do not release water.  
 D Plants release oxygen and absorb carbon dioxide.

- 14** Plant cells utilize both chloroplasts and mitochondria. What is the purpose of mitochondria when a cell already has chloroplasts?

A to store vitamins  
 B to turn sugars into energy  
 C to help plants store water  
 D to fight off infection and disease

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 15** Many people are concerned that Earth's rain forests are being cut down more quickly than they can be replaced. Based on your knowledge of the role that plants play in the global oxygen-carbon cycle, what effect might this loss of plants have?

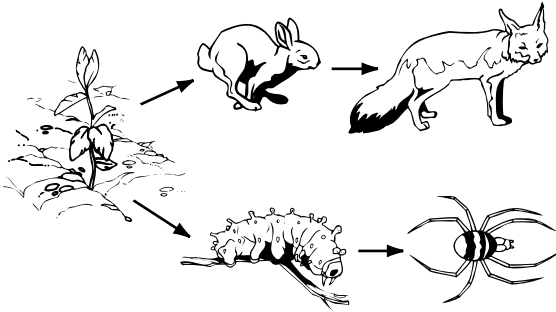
**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

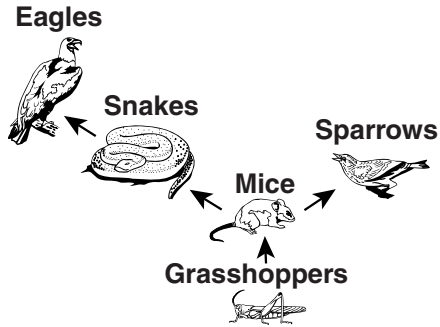
**16** Which of the following is a decomposer?

- A mushroom
- B grass
- C cricket
- D fish



**17** Which organism in the food web shown above is a herbivore?

- A plant
- B caterpillar
- C spider
- D fox



**18** Based on the diagram above, which of the following statements is true?

- A Energy transfers from sparrows to grasshoppers.
- B Energy transfers from eagles to snakes.
- C Energy transfers from grasshoppers to mice.
- D Energy transfers from snakes to mice.

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**19** Based on your knowledge of fungi, what negative effects can some fungi have on human health?



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**1** Conservation biologists want to save a type of salamander whose population is shrinking rapidly. Which of the following questions should the conservation biologists answer first?

- A** How can the habitat be better protected?
- B** Can salamanders be reintroduced?
- C** What do the salamanders eat at different times of the year?
- D** What is causing the salamanders to die?

**2** Which of these is the major characteristic of climax communities?

- A** a place that has animals and plants that have reached a stable stage
- B** succession that begins in a place that does not have any soil and did not ever support living organisms
- C** a place that contains multiple varieties of lichens
- D** succession that begins in a place that already has soil and was once the home of living organisms.

**3** Mouse populations increase in a rural area after a mild winter. Which of the following might you expect to happen?

- A** The number of predatory owls in the area will decrease.
- B** The ecosystem will become stabilized.
- C** The mouse population will remain at the new higher level forever.
- D** Populations of other organisms that compete with the mice for food may decrease.

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**4** A family of rabbits finds a new field of grass to live in. At first, the abundant food source allows the rabbit population to thrive and reproduce rapidly. Explain what will happen to this rabbit population's size and growth rate after some time in the new habitat. Draw a graph of the population over time as part of your answer.

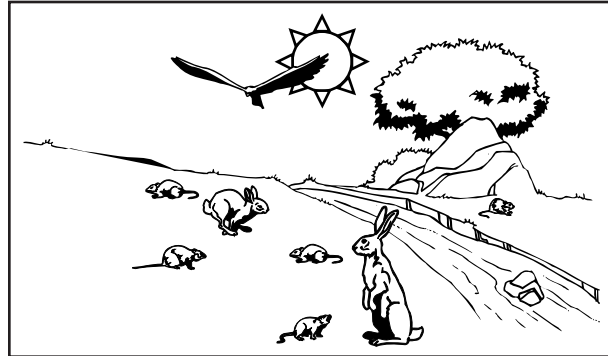
**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**5** A population of gazelles migrates to another habitat since their own has become uninhabitable due to drought. In the new habitat, there is already an established population of gazelles. In the new habitat, how might the increase in the gazelle population affect the lion population which prey on the gazelles?

- A** The lion population will steadily decrease due to increased competition for food.
- B** The lion population will increase at first, but may decrease over time if the ecosystem cannot support the extra gazelles.
- C** The lion population will be pushed out due to the overcrowding of other animals in the ecosystem.
- D** The increase in gazelles will have no effect on the lion population.



**6** A limiting factor is something that limits the size of a population in an ecosystem. Which of these could be a limiting factor for the rabbits in the picture?

- A** number of edible plants
- B** competition with other animals for food
- C** predation by the eagles in the ecosystem
- D** all of the above

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**7** A forest is cut down to make space for a new mall. What will be some of the effects of this human activity on the forest ecosystem?

**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 8** Scientists have invented new chemicals that can be used instead of CFCs in refrigerators and air conditioners. This will affect human health by \_\_\_\_\_.
- A** decreasing water pollution
  - B** increasing the greenhouse effect
  - C** decreasing the rate of ozone depletion
  - D** increasing the number of cases of lung cancer
- 9** As science searches for answers to questions about the world, it helps society by providing \_\_\_\_\_.
- A** solutions to moral issues
  - B** political analysis
  - C** technological advances
  - D** absolute, unchangeable knowledge
- 10** The evening news reports that modern technology is going to help reduce the problems of smog and the greenhouse effect. Which of these is the news report talking about?
- A** finding replacements for CFCs
  - B** composting more garbage
  - C** using alternatives to fossil fuels
  - D** building containers for nuclear waste
- 11** Which of the following is the best explanation of why farmers plant crops with nitrogen-fixing bacteria?
- A** Crops benefit from higher levels of nitrogen in the soil.
  - B** Crops benefit by developing a resistance to the bacteria.
  - C** Bacteria benefit from higher levels of nitrogen in the soil.
  - D** Bacteria compete with the crops for nitrogen.

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 12** For hundreds of years, doctors have used medications to treat illnesses, including those caused by genetic flaws. Scientists, however, are now developing gene therapy for such illnesses. How is gene therapy different from traditional medications?

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 13** Why is it that a person can catch a cold many times in his or her life, but usually only catches the chicken pox once?
- A** It is impossible to become immune to cold viruses.
  - B** Unlike the chicken pox virus there are many different varieties of viruses that cause colds. The immunity that a person builds up in response to past colds is not effective against different cold viruses.
  - C** Chicken pox is caused by a virus, while colds are not.
  - D** The virus that causes colds is much stronger than the one that causes chicken pox, and it is difficult to build up enough immunity to prevent becoming infected again.
- 14** People with HIV do not fight off infections well. Which of the following is the most likely cause of this?
- A** They have too much hemoglobin.
  - B** Their red blood cells are iron deficient.
  - C** Their white blood cells have a distorted shape.
  - D** They don't have many helper T cells.
- 15** When we exercise, our bodies work harder and our tissues require more oxygen to function. Our bodies respond by \_\_\_\_\_.
- A** decreasing heart rate
  - B** decreasing breathing rate
  - C** increasing carbon dioxide intake
  - D** increasing breathing rate
- 16** In one day, two teenage boys eat the same foods for breakfast, lunch, and dinner. The next day, one boy has gained weight, while the other's weight has remained the same. What factors below may explain the outcome?
- A** metabolic rate and activity level
  - B** the boy who gained weight is a half-inch shorter than the other boy
  - C** one boy had food produced by brand-name companies, while the other boy had generic foods
  - D** from the information given, it is impossible to determine why this occurred

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 17** Because viruses can multiply, some people consider them to be living organisms. Discuss the life cycle of a virus and how it is different from that of a cell.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 18** White blood cells defend your body against infection by engulfing invading organisms. The white blood cell engulfs the invader through the process of \_\_\_\_\_.
- A** endocytosis
  - B** diffusion
  - C** exocytosis
  - D** photosynthesis
- 19** Cecilia had been sick with a cold for two days. On the third day, her body temperature rose and she developed a fever. What caused her to develop a fever?
- A** the cold virus
  - B** her body's immune system
  - C** red blood cells
  - D** allergens creating heat while multiplying
- 20** White blood cells are produced in the part of a bone called the \_\_\_\_\_.
- A** compact bone
  - B** spongy area
  - C** red marrow
  - D** cartilage
- 21** In general, the difference between passive and active immunity is that active immunity \_\_\_\_\_.
- A** is introduced into the body
  - B** requires vaccinations
  - C** is manufactured in the body
  - D** doesn't last as long as passive immunity

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 22** How do T cells help in the body's fight against foreign bacteria and viruses?



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 1** Taxonomy is the science of classifying organisms. It groups organisms based on \_\_\_\_\_.  
**A** habitat  
**B** height  
**C** structural similarities  
**D** weight
- 2** All organisms are part of two interconnected global food webs—the ocean food web and the \_\_\_\_\_ food web.  
**A** air  
**B** land  
**C** sea  
**D** cave
- 3** A fertilized human egg cell contains genetic information from \_\_\_\_\_.  
**A** the female  
**B** the male  
**C** both parents  
**D** none of the above
- 4** Which of the following is the main function of the kidney in mammals?  
**A** purifying blood  
**B** maintaining water balance  
**C** digesting food  
**D** distributing oxygen to major organs

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 5** Although the basic functions of all cells are essentially the same, plant and animal cells have some differences. List two structures that are present in plant cells but not in animal cells.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 6** \_\_\_\_\_ consists of the chemical reactions that take place in organisms for extracting energy and synthesizing new materials.

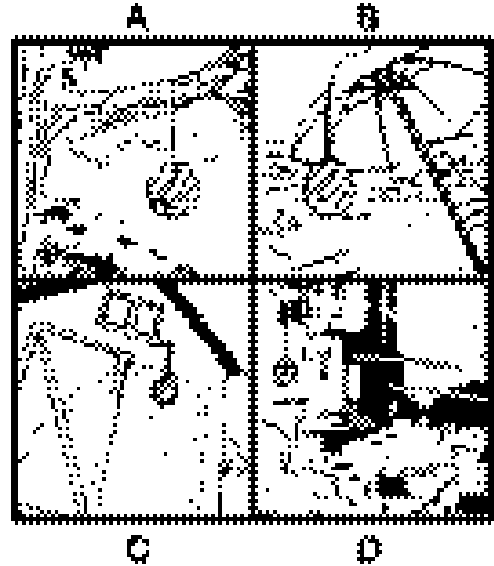
**A** Photosynthesis  
**B** Glycolysis  
**C** Metamorphosis  
**D** Metabolism

- 7** Which of the following organelles is responsible for photosynthesis in plants?

**A** the nucleus  
**B** the cell wall  
**C** mitochondria  
**D** chloroplasts

- 8** In humans, starch is broken down into \_\_\_\_\_ during digestion.

**A** glucose  
**B** carbon  
**C** hydrogen dioxide  
**D** sodium



- 9** The pictures show simple smog-collecting disks hanging in four different locations. During the day, the sticky disks will collect smog at different rates. At the end of one day, which location will have the most smog on its collecting disk?

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

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 10** The immune system builds immunity against certain diseases, but a person can catch a cold or the flu many times. Explain why.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**1** On a number line, five units to the left of +2 equals \_\_\_\_\_.

- A** +7
- B** +5
- C** -3
- D** -5

**2** Measurements of certain quantities require both positive and negative numbers. None of the following are measured with negative numbers EXCEPT \_\_\_\_\_.

- A** mass (g)
- B** volume (mL)
- C** length (m)
- D** temperature ( $^{\circ}\text{C}$ )

**3** On a number line, the positive numbers are located to the \_\_\_\_\_ of zero and the negative numbers are located to the \_\_\_\_\_ of 0.

- A** right, left
- B** left, right
- C** right, right
- D** left, left

**4** On the Celsius scale,  $0^{\circ}\text{C}$  represents the temperature at which water freezes. The freezing point of nitrogen is much lower than the freezing point of water. Therefore, the temperature at which nitrogen freezes \_\_\_\_\_.

- A** is greater than  $0^{\circ}\text{C}$
- B** is  $0^{\circ}\text{C}$
- C** is less than  $0^{\circ}\text{C}$
- D** cannot be determined from the given information

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**5** Gravitational force between two objects is always attractive and is measured by a positive number. Explain why it is necessary to use both negative and positive numbers for measuring electrical forces.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**6** If two lines,  $L_1$  and  $L_2$ , never intersect, then they are \_\_\_\_\_.

- A** perpendicular
- B** parallel
- C** oblique
- D** none of the above

**7** On a globe, the equator is the longest latitude line and divides the globe into the Southern and Northern hemispheres. All the lines of latitude are \_\_\_\_\_ to the equator.

- A** parallel
- B** oblique
- C** coplanar
- D** collinear

**8** On a coordinate plane, the  $x$ -axis and  $y$ -axis intersect perpendicularly. What is the angle between the two axes?

- A** 0
- B**  $30^\circ$
- C**  $90^\circ$
- D**  $120^\circ$

**9** Suppose line  $L_1$  is parallel to line  $L_2$  and line  $L_2$  is parallel to line  $L_3$ . Which of the following describes the relationship between  $L_1$  and  $L_3$ ?

- A** Lines  $L_1$  and  $L_3$  are oblique.
- B** Lines  $L_1$  and  $L_3$  are parallel.
- C** Lines  $L_1$  and  $L_3$  are perpendicular.
- D** none of the above

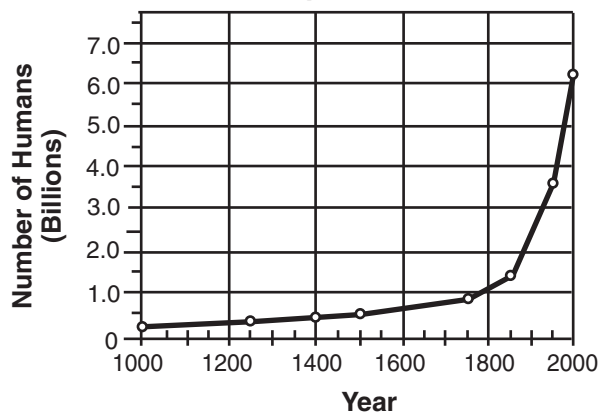
**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**10** Given three lines, two of which are parallel, explain why you cannot form a triangle from the three lines.

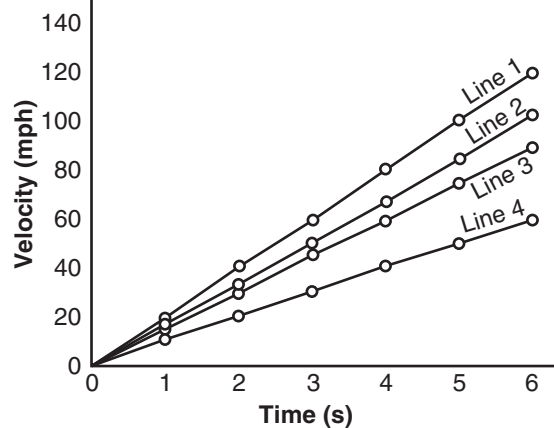
**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**The World's Population Growth**

- 11** The graph above shows the population growth of humans between years 1000 A.D. and 2000 A.D. How would you change the scale in this graph if you are interested in the population growth every 500 years?

**A** 1 unit on  $x$ -axis = 200 years  
**B** 1 unit on  $x$ -axis = 500 years  
**C** 2 units on  $x$ -axis = 300 years  
**D** none of the above

**Car Acceleration**

- 12** The graph above represents the change in velocity of four cars. The steepness of the line shows how fast the cars are accelerating. On the  $x$ -axis, the scale of unit time is given by  $1 \text{ s} = 1 \text{ cm}$ . Suppose the unit scale is changed, so  $1 \text{ s} = 0.5 \text{ cm}$ . This change in the scale would \_\_\_\_\_.

**A** cause the acceleration of the cars to double  
**B** cause the acceleration of the cars to reduce by half  
**C** not change the acceleration of the cars  
**D** none of the above

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 13** Suppose you want to make a map of a city on letter-size paper. From the center of the city, the farthest part on the north-south end is 47 miles and the farthest part on the east-west end is 25 miles. What scale would you use to draw the map of the city?

**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**14** Karen wants to know whether the students of her high school like the new swimming pool in the gym. For her survey, she should randomly choose \_\_\_\_\_.

- A** ten students in her gym class
- B** ten ninth graders at the school
- C** ten students in the school cafeteria during lunch
- D** ten students on the debate team

**15** A random sample of five students is chosen to find the average height of the students in the class. If the sample size is increased to eight students, the value of the average height of the students \_\_\_\_\_.

- A** increases
- B** decreases
- C** becomes more accurate
- D** becomes more precise

**16** Suppose a health organization wants to know the eating habits of people with diabetes. What is the best way to find this information?

- A** Conduct a survey of all people with diabetes and without diabetes.
- B** Conduct a survey of all diabetes patients who have been hospitalized.
- C** Conduct a survey of a random sample of diabetes patients.
- D** none of the above

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**17** On a science exam in Fiona's class, the best score was 97 and the worst score was 63. Describe how Fiona could estimate the average score of the class.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 1** If an object has negative acceleration, what can you conclude about its motion?
- A** The object is moving at constant speed.
  - B** The object is slowing down.
  - C** The object is speeding up.
  - D** none of the above
- 2** On a plane, line  $l$  is parallel to the  $x$ -axis and line  $m$  is parallel to the  $y$ -axis. Lines  $l$  and  $m$  are \_\_\_\_\_.
- A** parallel
  - B** perpendicular
  - C** oblique
  - D** collinear
- 3** A map is made using a scale of  $500 \text{ km} = 1.5 \text{ cm}$ . Two cities separated by  $1250 \text{ km}$  are \_\_\_\_\_ apart on the map.
- A**  $3.75 \text{ cm}$
  - B**  $5 \text{ cm}$
  - C**  $5.5 \text{ cm}$
  - D**  $10 \text{ cm}$
- 4** On a number line,  $-2$  and  $-5$  are points that are located to the left of  $0$ . The sum of the two numbers is \_\_\_\_\_ units to the \_\_\_\_\_ of zero.
- A**  $7$ , right
  - B**  $3$ , left
  - C**  $7$ , left
  - D**  $5$ , right

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

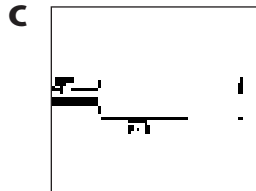
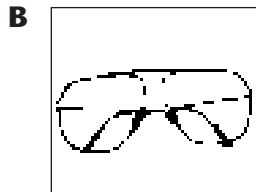
- 5** Every 10 years, the US census provides demographic information about the US population. Are the results based on a survey of a sample or of the full population?



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 1** Which of the following instruments helped scientists determine the causes of many diseases?



- 2** Before the development of germ theory, which of the following was the most persistent explanation of what causes disease?

- A** Diseases are caused by evil spirits.
- B** Diseases are caused solely by viruses.
- C** People believed it was impossible to know what causes disease.
- D** Diseases are caused by a disruption of the humors.

- 3** Throughout history, human cultures have created different explanations for disease. Which of the following uses spiritual explanations to diagnose and cure diseases?

- A** dentist
- B** shaman
- C** podiatrist
- D** all of the above

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 4** According to germ theory, many diseases are caused by microorganisms. Name three microorganisms that cause disease.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**5** Louis Pasteur discovered that fermentation in milk and wine is caused by \_\_\_\_\_.

- A** microorganisms
- B** low pH
- C** heat
- D** light

**6** Pasteurization is the process of \_\_\_\_\_.

- A** freezing a food until any microorganisms in it are killed
- B** heating a food until any microorganisms are killed
- C** pressurizing a food until any microorganisms are killed
- D** depressurizing a food until any microorganisms are killed

**7** Pasteurization is one way to keep food from spoiling. What is another way to keep food from spoiling?

- A** letting it sit in the sun
- B** keeping it in a dark, moist place
- C** sealing it in an airtight container
- D** covering it with a paper towel

**8** Which of the following is NOT a benefit of pasteurization?

- A** improved methods of preventing milk from spoiling
- B** improved methods of preventing cream from spoiling
- C** improved methods of preventing juice from spoiling
- D** improved methods of preventing boxed cereal from spoiling

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**9** Describe two pre-germ theory explanations for disease and illness.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 10** What are the proteins that your body produces in response to foreign matter?
- A** antigens
  - B** allergens
  - C** antibodies
  - D** helper T cells
- 11** Louis Pasteur recognized that deliberately infecting the body with disease organisms causes the body to \_\_\_\_\_.
- A** become more susceptible to further infection by those organisms
  - B** develop an allergy to those organisms
  - C** become immune to further infection by those organisms
  - D** reject those organisms by vomiting
- 12** Pasteur based his immunization research on the findings of which earlier disease researcher?
- A** Edward Jenner
  - B** Albert Einstein
  - C** Freeman Dyson
  - D** George Washington Carver
- 13** In the late 1800s, Louis Pasteur developed a successful vaccine for rabies virus created from \_\_\_\_\_.
- A** weakened virus
  - B** killed virus
  - C** new virus
  - D** weakened bacteria

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 14** Explain how vaccination can lead to immunity against some diseases.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**15** Which of the following was a pre-scientific method of disease treatment?

- A** chemotherapy
- B** vaccination
- C** electroshock therapy
- D** induced bleeding

**16** Which of the following is a result of modern science's acceptance of Pasteur's germ theory?

- A** sterilization techniques
- B** chiropractic techniques
- C** developments in quantum physics
- D** developments in atmospheric sciences

**17** Antiseptics are used in medical practice to \_\_\_\_\_.

- A** keep germs out of the body
- B** aid vaccination
- C** encourage the growth of "good" bacteria
- D** none of the above

**18** Alexander Fleming discovered the first antibiotic in 1928. He called it \_\_\_\_\_.

- A** nucleus
- B** vinegar
- C** penicillin
- D** sodium chloride

**CONSTRUCTED-RESPONSE QUESTION**

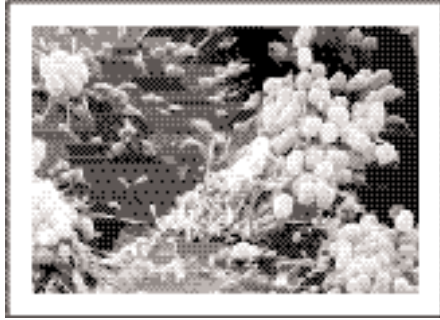
Write your answer to the following question on the lined answer sheet provided by your teacher.

**19** Describe three features of the modern approach to disease prevention.

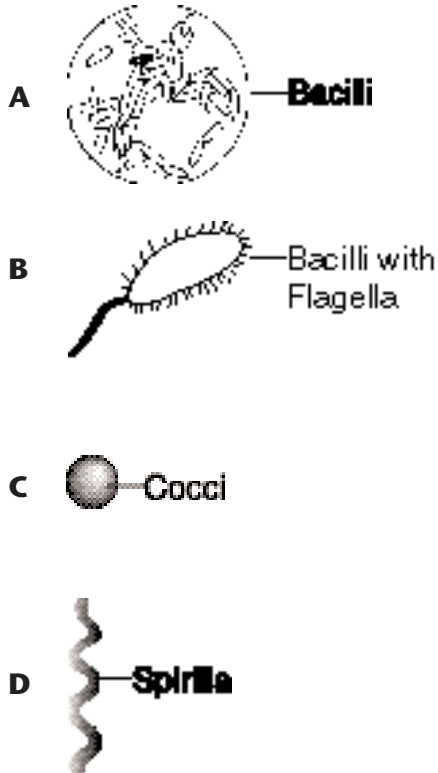


**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.



- 1** Bacteria are often classified by their shape. To which of these groups do the bacteria shown in the photo belong?



- 2** Louis Pasteur disproved the theory of \_\_\_\_\_, which asserted that life is generated from nonliving matter.
- A** photosynthesis  
**B** spontaneous generation  
**C** metamorphosis  
**D** biosynthesis
- 3** Injected vaccines help the body build up an immunity to diseases, but do not cause the disease itself. This is because \_\_\_\_\_.
- A** a live version of the germ is injected  
**B** a large dose of vitamin C is injected with the disease  
**C** a weakened or dead germ is injected  
**D** none of the above
- 4** Safe handling of food can prevent many diseases. Which of the following represents an unsafe procedure for handling food?
- A** Cutting vegetables and meat on the same cutting board.  
**B** Refrigerating all leftovers immediately.  
**C** Washing fruits and vegetables before eating them.  
**D** Cooking all meat products thoroughly.

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

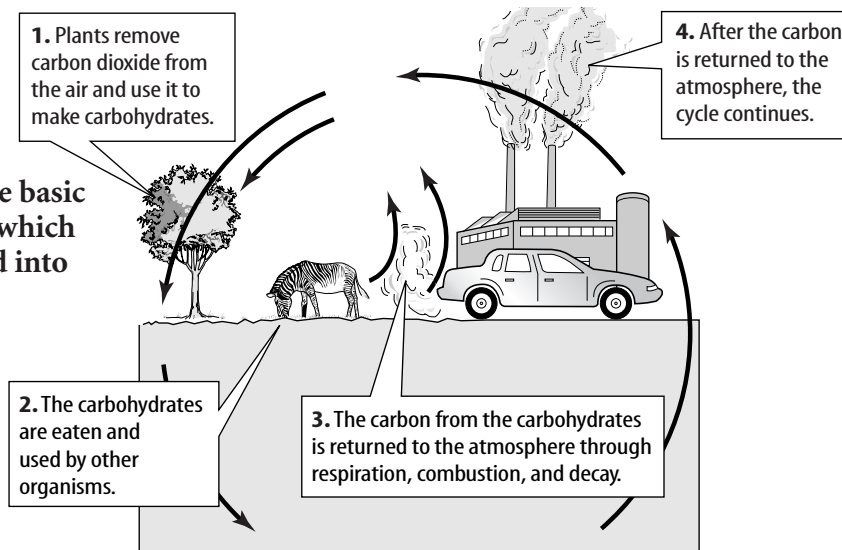
- 5** Explain why doctors before Pasteur treated illness by inducing vomiting or bleeding.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

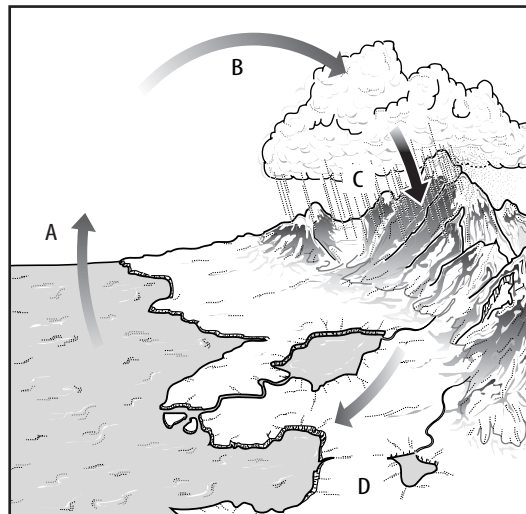
- 1** The diagram at left shows the basic steps of the carbon cycle. At which step is light energy converted into chemical energy?

- A** step 1  
**B** step 2  
**C** step 3  
**D** step 4



- 2** Which arrow in the image to the right represents precipitation?

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



- 3** Which arrow in the image to the right represents evaporation?

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

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 4** What is the source of energy in the water cycle?

**GO ON** 

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 5** Which of the following statements describes the relationship between a food web and a food chain?
- A** A food chain is a more elaborate version of a food web.
  - B** A food chain is many different food webs combined.
  - C** Food webs are not related to food chains.
  - D** none of the above
- 6** Which of the following situations is best illustrated using a food chain?
- A** The movement of energy among a caterpillar, a ladybug, a bee, and a wasp.
  - B** The movement of energy among a blue bird, a mockingbird, a crow, and a sparrow.
  - C** The movement of energy among a pine tree, an oak tree, a dandelion, and a wheat plant.
  - D** The movement of energy among a fly, a frog, a snake, and an owl.
- 7** Which model would you use to identify all of the primary consumers in an ecosystem?
- A** a food chain
  - B** a food web
  - C** either a food chain or a food web
  - D** neither a food chain nor a food web
- 8** Which of the following statements about models is correct?
- A** More complex models are always better than simpler models.
  - B** Simpler models are always better than more complex models.
  - C** Models are never useful explanations of real world processes.
  - D** none of the above

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 9** Explain why light is always the fundamental element of food chains and food webs.

**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 10** A biologist grows a plant inside a sealed glass jar. The plant keeps growing for several days but then dies. At the start of the experiment, the jar had a mass of 3 kg. At the end of the experiment, it still had a mass of 3 kg. Which of the following explains why the mass was the same?
- A The plant created mass.
  - B The jar's temperature was the same as before.
  - C The jar was sealed and new mass could not enter.
  - D The plant did not grow enough to add new mass to the jar.
- 11** If the blood contains too little or too much glucose, the endocrine system will respond by increasing or decreasing the glucose level. The endocrine system is a type of \_\_\_\_\_.
- A positive feedback system
  - B equilibrium feedback system
  - C negative feedback system
  - D neutral feedback system
- 12** How does shivering help the human body?
- A It exercises our bodies.
  - B It helps keep us cold.
  - C It exercises our bones.
  - D It helps keep us warm.
- 13** Biological systems maintain stability through the self-regulating process of \_\_\_\_\_.
- A homeostasis
  - B heterostasis
  - C homeopathy
  - D empathy

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 14** The human body's two kidneys maintain water balance and expel waste. Explain why human beings can survive with just one kidney.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

**15** The rate of growth in a population can be described using this equation:  
 $\text{growth rate} = \text{birth rate} - \text{death rate}$ .  
What is the rate of population growth for a population with a birthrate of 8% and a death rate of 2%?

- A** 6%
- B** 2%
- C** 4.5%
- D** 10%

**16** The rate of growth in a population can be described using this equation:  
 $\text{growth rate} = \text{birth rate} - \text{death rate}$ .  
Suppose the rate of population growth is  $-3\%$ . This means that \_\_\_\_\_.

- A** the rate of births is greater than the rate of deaths
- B** the rate of deaths is fewer than the rate of births
- C** the rate of deaths is equal to the rate of births
- D** the rate of births is fewer than the rate of deaths

**17** Suppose a population of 30 fish is decreasing by a rate of 3% per week. Which of the following could represent the birth rate and death rate of the population?

- A** The birth rate is 11% and the death rate is 5%.
- B** The birth rate is 3% and the death rate is 8%.
- C** The birth rate is 2% and the death rate is 5%.
- D** The birth rate is 9% and the death rate is 6%.

**18** Suppose the primary predators of a mouse population are killed during hunting season. Which of the following is likely to happen to the mouse population?

- A** The death rate will decrease because there are a fewer predators.
- B** The birth rate will decrease because there are fewer predators.
- C** The death rate will increase because there are fewer predators.
- D** none of the above

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

**19** Write an equation to describe the rate of growth in a population with a birth rate of 25% and a death rate of 11%.



**MULTIPLE-CHOICE QUESTIONS**

Choose the best answer for each of the following questions. Mark your answers on the answer sheet provided by your teacher.

- 1** In some chemical reactions, there is no net change in the amount of reactant or product. This describes a state of \_\_\_\_\_.
- A** imbalance
  - B** chaos
  - C** entropy
  - D** equilibrium
- 2** Information about body temperature is carried by the \_\_\_\_\_ to the brain, which then adjusts blood sugar and metabolic rate.
- A** nervous system
  - B** endocrine system
  - C** blood stream
  - D** airways in the lung
- 3** Human body temperature is a good example of \_\_\_\_\_ in the human body.
- A** the immune system
  - B** homeostasis
  - C** evolution
  - D** none of the above
- 4** Which of the following variables would NOT be included in an equation to calculate human population growth?
- A** current population size
  - B** death rate
  - C** birth rate
  - D** temperature

**CONSTRUCTED-RESPONSE QUESTION**

Write your answer to the following question on the lined answer sheet provided by your teacher.

- 5** Most animal populations grow at a consistent rate until they reach equilibrium. Explain why populations cannot increase at a steady rate forever.



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