Coach Jumpstart

North Carolina **READY EOG** Edition

Science

Grade 8

triumphlearning™

Coach Jumpstart, North Carolina READY EOG Edition, Science, Grade 8
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Practice Test 1

Name: _____

Sample Questions

S1 Student A performs a science experiment 3 times. Student B performs it 5 times. Student C performs it 11 times. Student D performs it 7 times. Which student is ***most likely*** to be sure of the results?

A Student A

B Student B

C Student C

D Student D

S2 Which piece of lab equipment is used to determine the mass of an object?

A meterstick

B flask

C barometer

D balance

STOP

1 Which term describes the substance that forms when two or more types of atoms join?

A element

B compound

C composite

D mixture

2 Which shows one example of a physical change and then one example of a chemical change?

A dissolving sugar and grinding pepper

B melting butter and mixing flour with salt

C boiling water and burning gasoline

D roasting meat and freezing leftovers

3 Which is an example of a physical change?

A ice melting

B iron rusting

C wood burning

D garbage rotting

Go to the next page.

4 If a chemical reaction such as the formation of iron oxide contains 4 atoms of iron (Fe) in the product, how many atoms of iron (Fe) would be in the reactants?

A 12 atoms of iron (Fe)

B 8 atoms of iron (Fe)

C 4 atoms of iron (Fe)

D 2 atoms of iron (Fe)

5 Which is an example of a nonrenewable energy resource?

A petroleum

B solar energy

C wind energy

D geothermal energy

6 Which problem is ***most likely*** to result from the use of nuclear power?

A pollutants in the groundwater after drilling

B storage of radioactive wastes

C miners getting trapped underground

D oil spills that pollute oceans and beaches

Go to the next page.

7 Which is the ***most likely*** result of not conserving energy?

A improved fuel efficiency

B improved air quality

C decreased energy costs

D decreased supply of energy

8 Which describes a characteristic of river basins?

A They are a source of groundwater.

B They are saltwater ecosystems.

C They flow down from aquifers.

D They drain into the ocean.

9 One dry summer, a large number of fish suddenly died in a shallow river. Which is the ***best*** explanation for this fish kill?

A The water became too warm to hold enough dissolved oxygen for the fish.

B Heavy rains washed soil into the river, making it too muddy for the fish.

C Fertilizer caused too many algae to grow, and the fish died from overeating.

D The water became too cold, stressing the fish so that they became sick and died.

Go to the next page.

10 Which of these is ***most likely*** to have a harmful effect on water quality?

A having water laws and regulations

B using chemical indicators to check water quality

C treating sewage to kill pathogens

D letting pollutants wash out to sea

11 How can scientists use the law of superposition?

A to determine the absolute ages of fossils in undisturbed rock layers

B to determine the relative ages of fossils in undisturbed rock layers

C to determine the absolute ages of fossils in overturned rock layers

D to determine the relative ages of fossils in overturned rock layers

12 A scientist finds fossils of sea organisms in a layer of rock on dry land. Which is the ***best*** conclusion for the scientist to make?

A A storm carried the sea organisms onto dry land before they died.

B Tectonic forces moved the fossils from the ocean floor to an area of dry land.

C The sea organisms had developed adaptations for living on dry land.

D Ocean water once covered the area where the fossils have been found.

Go to the next page.

13 Which ***best*** describes how ice cores provide evidence of Earth's history?

A Ice cores contain bubbles of air from ancient atmospheres.

B Ice cores contain layers of sedimentary rock.

C Ice cores are taken from deep deposits of ice and snow.

D Ice cores reveal how the continents have moved over time.

14 Which of these can reproduce only when inside a host cell?

A bacterium

B virus

C fungus

D parasite

15 Which diseases are ***most likely*** to be treated with antibiotics?

A those caused by viruses

B those caused by fungi

C those caused by parasites

D those caused by bacteria

Go to the next page.

16 Epidemics of polio and measles used to be common in the United States. Now they are rare. What is the ***best*** explanation for this?

A careful use of antibiotics

B insecticides that kill transmitting pests

C widespread vaccination

D water monitoring and treatment

17 Which is an example of biotechnology?

A developing hydropower energy sources

B studying how viruses cause diseases

C developing crop plants that are resistant to weed killers

D using bioindicators to monitor water quality

18 Which describes a risk of biotechnology?

A Bacteria can be used to make insulin and other human chemicals less expensively.

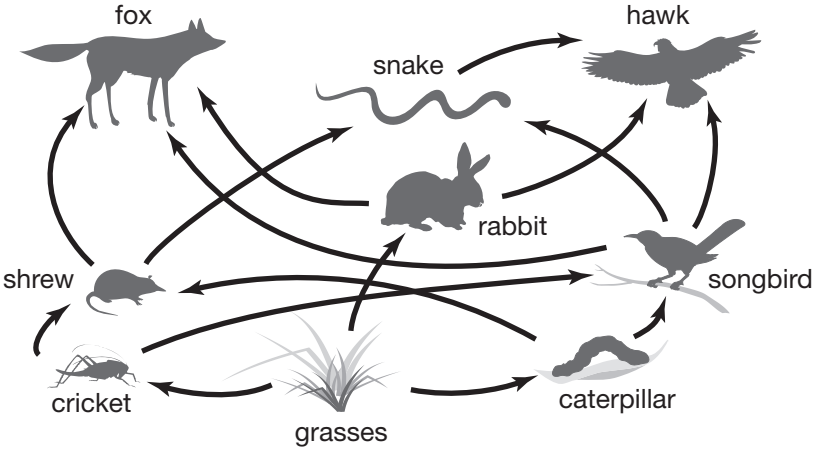
B DNA fingerprinting can prove that an accused person did not commit the crime.

C Health insurance companies may refuse to insure people who have genes for diseases.

D Human gene mapping can lead to treatment or prevention of disease.

Go to the next page.

19 Think about how energy flows in this food web.



Which organisms are found at the level with the ***most*** available energy?

A fox, snake, hawk

B cricket, caterpillar, rabbit

C shrew, songbird

D grasses

Go to the next page.

20 Which of these organisms are ***least likely*** to be producers?

A algae

B bacteria

C plants

D fungi

21 Which is a basis for biological classification?

A sharing similarities in behavior

B sharing the same ecosystem

C sharing a common ancestor

D sharing similar places in the food web

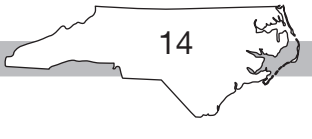
22 Which ***best*** describes the relationship between genetic variation and adaptation?

A Individuals in a population are genetically different from one another.

B Individuals have different traits because they have different genes.

C Individuals with certain genes are more likely to survive and reproduce.

D Individuals change their genes so they are better suited to their environment.



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23 Which trait would be ***most likely*** to help a species survive in a changing environment?

A having genetic variations

B being at the top of the food chain

C living in a small geographic area

D having the ability to hibernate

24 How is carbon dioxide in the air turned into the carbon in food molecules?

A by cellular respiration

B by mitosis

C by digestion

D by photosynthesis

25 Which system delivers nutrients to the body's cells?

A digestive

B circulatory

C respiratory

D nervous

Go to the next page.

26 Which is the ***best*** example of a mixture?

A a brick of pure gold

B the distilled water in a bottle

C the salt water in the ocean

D the helium in a balloon

27 Which action causes a chemical change?

A boiling water

B crushing sugar cubes

C sifting flour

D cooking eggs

28 Which ***best*** describes a chemical change?

A A chemical change requires no change in energy.

B A chemical change is easily reversed.

C In a chemical change, there is only a change in state.

D In a chemical change, a new substance with different properties forms.

Go to the next page.

29 Which of these ***best*** illustrates the law of conservation of mass?

A The number of each type of molecule in a balanced chemical equation is the same on both sides.

B The number of each type of atom in a balanced chemical equation is the same on both sides.

C The mass of the products in a chemical reaction is greater than that of the reactants.

D The mass of the reactants in a chemical reaction is greater than that of the products.

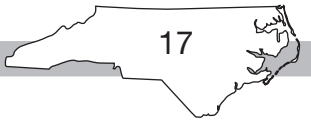
30 Which is a possible disadvantage of using biomass as fuel?

A Using crops for biomass fuels rather than food may affect the price and supply of food.

B Biomass is a nonrenewable energy resource that is gone for good once it is used up.

C Using biomass fuels in cars causes them to burn more gasoline.

D Using biomass is possible only in a few places in the world with the correct conditions.



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31 Which renewable resource comes from the energy of moving water?

A solar power

B wind energy

C hydropower

D biomass

32 Wilson Creek, a National Wild and Scenic River, flows through the Wilson Creek Gorge before it joins the Johns River. Which term ***best*** describes Wilson Creek?

A aquifer

B estuary

C watershed

D tributary

33 What are the ***most likely*** effects of ocean upwelling?

A increased nutrients and increased populations of algae and fish

B decreased photosynthesis and increased chemosynthesis

C increased water temperature and decreased dissolved oxygen

D increased pollution and decreased animal and plant populations

Go to the next page.

34 Which factors are ***most*** characteristic of a healthy body of water?

A low salinity and high turbidity

B high pH and low dissolved oxygen

C high temperature and large quantities of algae

D low turbidity and high dissolved oxygen

35 A scientist finds a fossil of an armored fish. What would help the scientist determine the approximate age of the fossil?

A the types of trees growing in the area where the fossil was found

B the life span of armored fish species alive today

C the index fossils found in the same rocks as the fish fossil

D the weather conditions in the area where the fossil was found

36 Which process would be ***best*** for finding the absolute age of a fossil?

A comparing the amount of a radioactive substance in the rock with the amount of its decay product

B determining the age of the rock layers immediately above and below the fossil

C identifying the index fossils found nearby

D doing laboratory experiments to determine exactly how the fossil was formed

Go to the next page.

37 Which is the ***best*** explanation for why a fish fossil is found in the rock at the top of a mountain?

A As a prehistoric bird was flying over the mountain, the bird dropped the fish.

B The mountain and surrounding area were flooded thousands of years ago.

C Mountain-building processes raised rocks formed at the bottom of the ocean.

D Prehistoric fish were able to live on the land at the tops of mountains.

38 What do earthquakes and faults reveal about Earth's history?

A Most of the species that once lived on Earth are now extinct.

B Sedimentary rocks are formed when eroded bits of rock are compacted and cemented.

C The plates that make up Earth's crust are continually moving.

D Mountains may be formed as the result of volcanic activity.

39 Why are people encouraged to get a flu shot?

A A flu shot is a vaccine that prevents people from catching the flu.

B A flu shot is an antibiotic that kills bacteria in the human body.

C A flu shot is an antiviral that slows down the multiplication of viruses in cells.

D A flu shot is a chemical that kills parasites in the human body.

Go to the next page.

40 How is Lyme disease transmitted from an infected mouse to a human?

A A tick that feeds on the mouse then bites the human.

B The human breathes in dust containing dried urine from the mouse.

C The infected mouse bites the human.

D The human cleans the litter box of a pet cat that ate the mouse.

41 Amebic dysentery is a disease caused by organisms that live in dirty water. Which is ***most likely*** to prevent an epidemic of amebic dysentery?

A vaccination of the population

B purification of drinking water

C public education on the importance of washing hands

D restriction on travel to places with amebic dysentery

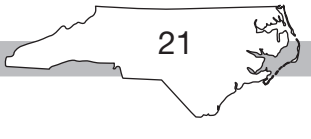
42 Which of these describes a pandemic rather than an epidemic?

A Many people in an area become sick from a disease.

B Public health scientists monitor and try to stop the spread of a disease.

C The origin of a disease remains a mystery.

D A disease spreads internationally over the course of a year.



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43 Which is ***most likely*** to be a risk of biotechnology?

A producing livestock with desired characteristics

B causing allergic reactions to foreign genes in food

C creating new varieties of disease-resistant plants

D manufacturing human insulin and other medicines

44 Which is an example of an abiotic factor that would strongly affect the population of water lilies in a pond?

A sunlight

B fish

C insects

D rocks

45 Cleaner fish are fish that eat the parasites on larger fish. Which term ***best*** describes the relationship between the cleaner fish and the larger fish?

A competition

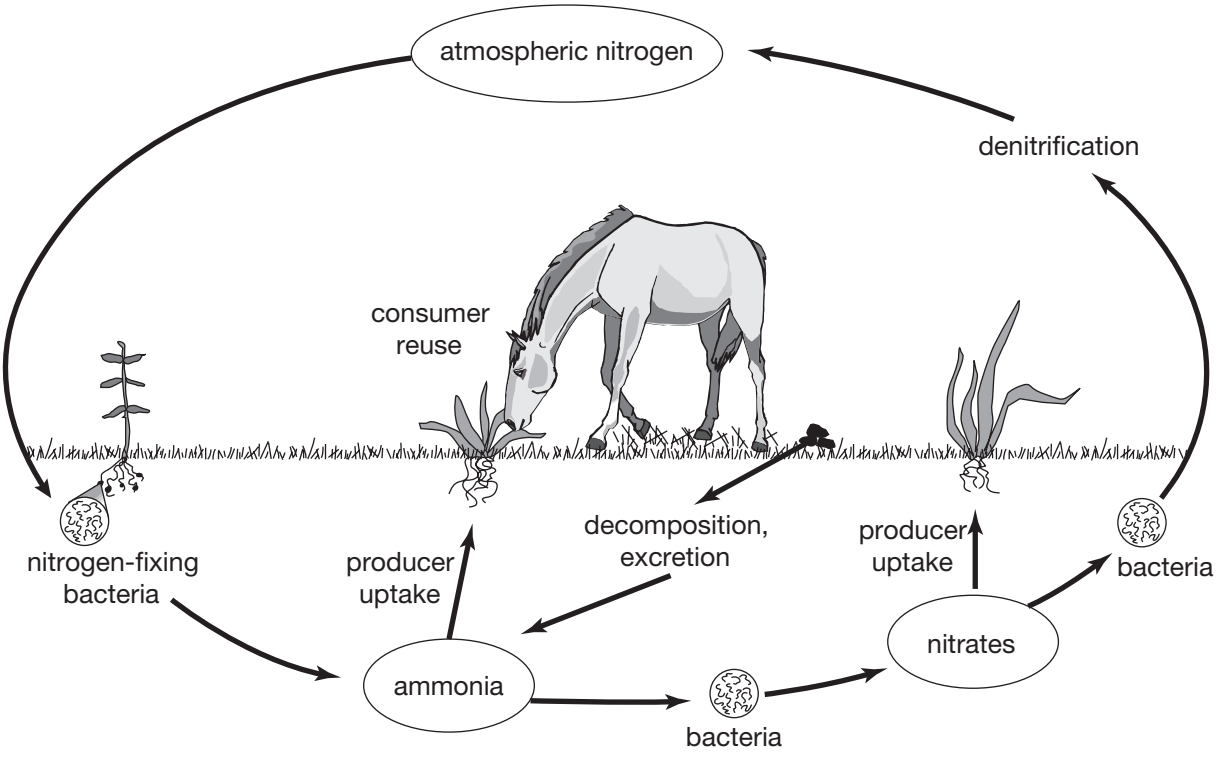
B mutualism

C parasitism

D predation

Go to the next page.

46 Study this diagram of the nitrogen cycle.



How does nitrogen gas in the air become nitrogen in the molecules of living things?

A Denitrifying bacteria make nitrogen available to plants and animals.

B Bacteria break down nitrogen compounds in dead plants and animals.

C Nitrogen-fixing bacteria make nitrogen available to the roots of plants.

D Nitrogen compounds in decaying matter are added to the soil.

Go to the next page.

47 Scientists once placed sea stars, jellyfish, and comb jellies in a phylum called Radiata. Now scientists classify these animals in separate phyla. What is the ***most likely*** reason?

A Some of these animals are shaped like a ball, but others are shaped like a disk.

B Current evidence shows that these groups of animals are not closely related.

C These animals' round shapes are evidence of evolution from a common ancestor.

D These animals live in different types of ecosystems that are far apart.

48 Which describes a feature of natural selection?

A It has no effect on the evolution of species.

B It affects individuals but not populations.

C It can work only with the genetic variation that already exists.

D It can cause mutations that help species adapt to environmental changes.

49 Which process releases energy from food molecules?

A meiosis

B photosynthesis

C cellular respiration

D symbiosis

Go to the next page.

50 How do animals obtain the carbon and nitrogen they need for building materials?

A by eating food

B by breathing

C by performing photosynthesis

D by performing cellular respiration

51 According to the periodic table, the atomic number of oxygen (O) is 8. How many protons does one oxygen atom contain?

A 16 protons

B 12 protons

C 8 protons

D 4 protons

52 Magnesium (Mg) is immediately to the right of sodium (Na) on the periodic table. In what way does a magnesium atom differ from a sodium atom?

A The number of protons is increased by one.

B The number of neutrons is increased by two.

C The atomic mass is increased by one.

D The number of electrons is increased by two.

Go to the next page.

53 Which of these elements has chemical properties ***most*** similar to those of carbon (C)?

A boron (B)

B magnesium (Mg)

C oxygen (O)

D silicon (Si)

54 Which ***best*** describes renewable energy resources?

A Renewable energy resources can be replaced as they are used or cannot be used up.

B Renewable energy resources include fossil fuels such as oil and natural gas.

C Renewable energy resources have no impact on the environment.

D Renewable energy resources currently provide most of the energy in the United States.

55 Critics say that electric cars are not as pollution-free as people think. Why?

A Electric cars burn fuels that release carbon dioxide into the air.

B Electrical energy is often produced by power plants that burn fossil fuels.

C The process of distributing electrical energy releases carbon dioxide.

D The energy used by electrical cars comes from renewable energy resources.

Go to the next page.

56 Which is a disadvantage of solar energy?

A Solar energy cannot be used to turn turbines.

B The sun is too far away to provide enough energy.

C Solar panels produce pollutants that lead to global warming.

D Photovoltaic cells do not produce electricity at night.

57 Where is most of Earth's freshwater located?

A in lakes and rivers

B in polar ice caps

C in the ocean

D in underground aquifers

58 Which organism is ***most likely*** to be found in an estuary environment?

A crab

B whale

C jellyfish

D dolphin

Go to the next page.

59 If a body of water has low levels of dissolved oxygen, what can ***most likely*** be concluded?

A The water temperature is high.

B The water has a high salinity.

C The water has a high turbidity.

D The water has a low pH.

60 Phosphates help detergents make clothes whiter and clean dishes better. Which is the ***best*** reason why phosphates have been removed from detergents?

A to prevent algal blooms

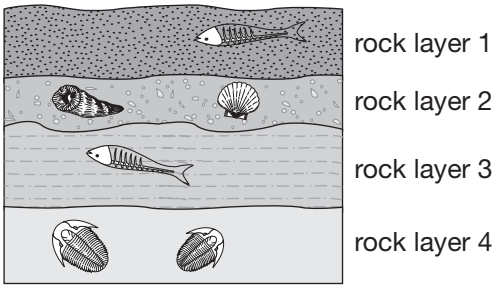
B to prevent pollution of aquifers

C to improve the health of humans

D to improve turbidity levels

Go to the next page.

61 Observe these undisturbed rock layers.



Which is the ***best*** conclusion?

A Rock layer 1 and rock layer 3 are the same age, because they contain the same type of fossil.

B The shell in rock layer 2 is an example of an index fossil.

C Rock layer 4 is younger than rock layer 1.

D Rock layer 3 is older than rock layer 2.

62 What are scientists ***most likely*** to learn about Earth's history by studying fossils?

A how the mountains of an area formed

B how the types of organisms on Earth have changed

C how igneous intrusions have changed the rocks around them

D how sedimentary rock forms

Go to the next page.

63 How do viruses differ from other disease-causing organisms?

A Viruses can be treated with antibiotics.

B Viruses are transmitted through coughing or sneezing.

C Viruses are not made up of cells.

D Viruses multiply inside infected cells.

64 Which kind of organisms are disease-causing yeasts and molds?

A bacteria

B fungi

C parasites

D viruses

65 Which is the ***best*** way to treat athlete's foot?

A antibiotic

B vaccine

C fungus-killing medicine

D antiviral medicine

Go to the next page.

66 Which of these is ***best*** described as a pandemic?

A A student catches flu from her younger brother.

B Three members of a soccer team come down with flu.

C Dozens of people in two neighboring towns have flu at the same time.

D Tens of millions of people worldwide are infected with flu in the same year.

67 Studying biotechnology is ***most likely*** to be useful for which career?

A computer scientist

B nuclear physicist

C agricultural researcher

D archaeologist

68 Suppose most of the rabbits in an area suddenly die from a disease. What would happen to the populations of the rabbits' predators and competitors?

A Populations of both predators and competitors would increase.

B Populations of predators would increase, and those of competitors would decrease.

C Populations of predators would decrease, and those of competitors would increase.

D Populations of both predators and competitors would decrease.

Go to the next page.

69 Which of these is ***not*** a body of freshwater?

A stream

B lake

C river

D estuary

70 Which is evidence that two species evolved from a common ancestor?

A They are found in the same part of the world.

B They eat the same types of food.

C Their embryos develop in a similar way.

D They have the same predators and parasites.

71 Which is the ***best*** evidence that a series of fossils shows the evolution of the whale?

A The fossils are found in older layers of rock than whale fossils.

B The fossils show a gradual change to more whalelike structures.

C The fossils possess front flippers and powerful tails.

D The fossils are from mammals that are completely aquatic.

Go to the next page.

72 How does adaptation explain the evolutionary history of the horse?

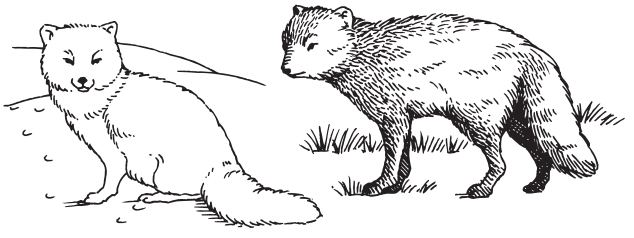
A Larger, faster individuals were more likely to survive and reproduce.

B Natural selection favored the genes for a small size and the ability to hide.

C Horse ancestors evolved so that they were better adapted to transport humans.

D Individuals that learned to grow hooves passed this trait to their offspring.

73 The picture on the left shows an arctic fox in winter. The picture on the right shows the same fox in summer.



How did the fox ***most likely*** get this adaptation?

A The fox inherited white fur from its mother and brown fur from its father.

B The fox's parents learned to change their fur color and passed that trait to their offspring.

C In summer, the arctic fox eats foods that make its fur turn brown.

D The change in fur color helped the fox's ancestors survive and reproduce.

Go to the next page.

74 How do plant cells release the energy they need to carry out their life processes?

A by photosynthesis in the chloroplasts

B by respiration in the mitochondria

C by mitosis in the nucleus

D by absorption in the cell membrane

75 Which is likely to improve a person's respiratory and cardiovascular systems the ***most***?

A eating more vegetables

B exercising two hours a week

C quitting tobacco smoking

D taking multivitamins

STOP

Coach Jumpstart, North Carolina
READY EOG Edition, Science, Grade 8

Practice Test 2

Name: _____

Sample Questions

S1 Student A performs a science experiment 3 times. Student B performs it 5 times. Student C performs it 11 times. Student D performs it 7 times. Which student is ***most likely*** to be sure of the results?

A Student A

B Student B

C Student C

D Student D

S2 Which piece of lab equipment is used to determine the mass of an object?

A meterstick

B flask

C barometer

D balance

STOP

1 Earth's air is made up of molecules of different gases that are not joined chemically. Which term ***best*** describes air?

A compound

B mixture

C pure substance

D element

2 Which statement ***best*** describes the periodic table?

A Each vertical column forms a period.

B The number of electrons decreases from left to right.

C The atomic mass decreases from left to right.

D Elements in the same group have similar chemical properties.

3 Which of these elements is ***most likely*** to have chemical properties similar to those of calcium (Ca)?

A magnesium (Mg)

B neon (Ne)

C potassium (K)

D zirconium (Zr)

Go to the next page.

4 Which is ***most likely*** to conserve energy resources?

A using public transportation

B using nuclear energy instead of solar energy

C turning thermostats higher in winter

D burning coal instead of using hydropower

5 Which is an advantage of using nuclear power plants?

A They use renewable energy resources.

B They do not cause air pollution.

C They change radioactive substances into harmless substances.

D They produce unlimited electrical energy.

6 Which is a possible consequence of using hydropower to produce electricity?

A Dams may flood areas upstream.

B Radioactive wastes may be produced.

C Air pollution may increase.

D More fossil fuels may be used.

Go to the next page.

7 About what percentage of Earth's surface is covered with water?

A 30 percent

B 50 percent

C 70 percent

D 90 percent

8 Which organism is ***most likely*** to be found near the surface of the open ocean?

A whale

B clam

C crab

D snail

9 What is the relationship between water temperature and dissolved oxygen?

A As water temperature goes up, the amount of dissolved oxygen increases.

B Water temperature has no effect on the amount of dissolved oxygen.

C The amount of dissolved oxygen decreases as water temperature decreases.

D Cold water can contain more dissolved oxygen than warm water can.

10 Which is a biological indicator of water quality?

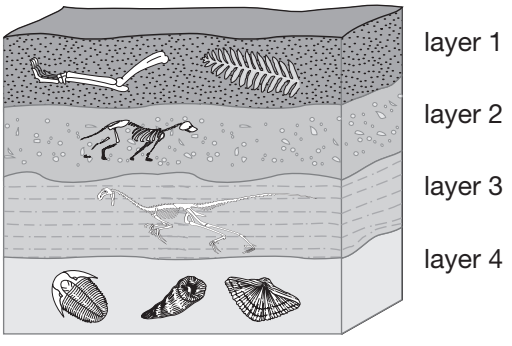
A diversity of insect larvae

B turbidity

C pH level

D salinity

11 Look at these undisturbed rock layers.



What could a scientist conclude about the fossils in them?

A The oldest fossils are located in rock layers 1 and 2.

B The dinosaur in layer 3 is older than the fern in layer 1.

C The skeleton in layer 2 is younger than the bones in layer 1.

D The youngest fossil animals are located in rock layer 4.

Go to the next page.

12 The fossils of swamp plants and animals have been found in desert rocks. What is the ***best*** explanation for this?

A The climate in the area was once very different.

B The animals migrated from a swamp into the desert.

C The desert changed into a swamp due to continental drift.

D The plants and animals died out after a drought.

13 Which term is used to describe all disease-causing microorganisms?

A bacteria

B pathogens

C parasites

D viruses

14 Measles is a disease caused by a virus. Which is the ***most*** effective way to keep measles from spreading?

A giving antiviral medicines to people who have measles

B having healthy people wash their hands often

C giving antibiotics to people who have measles

D vaccinating healthy people against measles

15 Which is ***not*** considered to be a living organism?

A virus

B bacterium

C parasite

D fungus

16 Which term ***best*** describes an outbreak of flu that affects many people in a local area?

A vector

B pathogen

C epidemic

D pandemic

17 Studying biotechnology is ***least likely*** to be helpful for which career?

A agricultural researcher

B pharmacist

C auto mechanic

D livestock breeder

Go to the next page.

18 When European settlers first came to North Carolina, they cleared land for farms and raised sheep and cattle. What effect did this have on space, competition, and populations of Eastern elk and wood bison?

A Space decreased, competition increased, and bison and elk populations decreased.

B Space decreased, competition decreased, and bison and elk populations decreased.

C Space increased, competition decreased, and bison and elk populations increased.

D Space increased, competition increased, and bison and elk populations decreased.

19 Which term ***best*** describes an organism that lives in or on another organism?

A decomposer

B predator

C parasite

D consumer

20 Which provides the ***best*** evidence that sharks and dolphins are not closely related?

A They have different anatomies.

B They use different feeding methods.

C They evolved at different times.

D They live in different parts of the ocean.

21 Which is ***least likely*** to show that two species share a common ancestor?

A They have similar genetic sequences.

B They have similar embryo development.

C They have analogous body structures.

D They have homologous body structures.

22 How is adaptation shown in the evolutionary history of the whale?

A Over time, flukes and flippers for swimming replaced legs in the ancestors of whales.

B The ancestor of whales was a predator that lived on land but entered the water to hunt for fish.

C The whale ancestors that learned to swim the fastest passed this trait to their offspring.

D Individuals with flippers could not move as well on land, so the trait for flippers disappeared.

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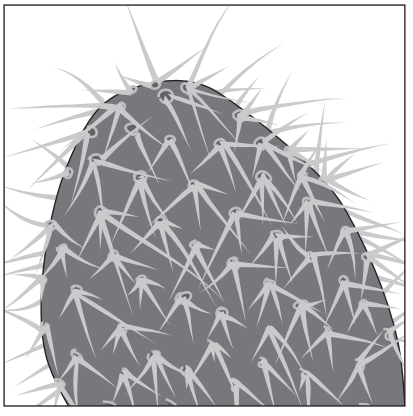
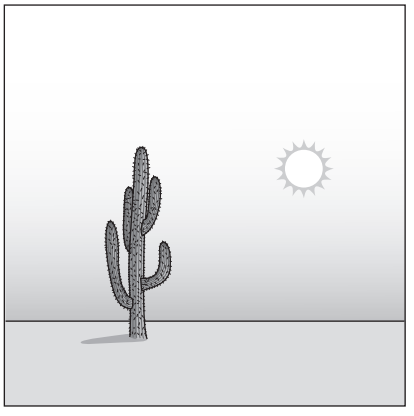
23 The picture on the right shows a cactus in its environment, and the picture on the left shows a close-up view of the cactus.





Which trait would be ***most likely*** to help this species of cactus survive if the environment changed?

A having the sharpest spines

B having the thickest stems

C having genetic variations

D having the smallest leaves

Go to the next page.

24 How do plant cells use the energy of sunlight to make glucose?

A by absorption in the cell wall

B by mitosis in the nucleus

C by respiration in the mitochondria

D by photosynthesis in the chloroplasts

25 Which is the ***best*** explanation for why a healthy diet supports a person's general health?

A A healthy diet supplies proteins for energy and carbohydrates for growth and repair.

B A healthy diet prevents infectious diseases and produces energy.

C A healthy diet ensures that all cells get the oxygen they need.

D A healthy diet provides energy and the building materials for growth and repair.

26 Which term ***best*** describes matter that contains only one kind of atom?

A element

B compound

C mixture

D crystal

Go to the next page.

27 Which action causes a physical change but not a chemical change?

A lighting a candle

B baking a cake

C dissolving an antacid tablet in water

D separating sand from pebbles

28 Which is an example of a chemical change?

A A chemical from skunks is added to odorless natural gas so that people can smell gas leaks.

B If a scuba diver surfaces too quickly, the change in pressure causes dissolved nitrogen to form bubbles in the blood.

C Over time, sand carried by the wind can grind rocks into natural arches and towers.

D Bending a glow stick breaks a divider so that two chemicals can mix and produce light.

29 If a chemical reaction such as the burning of natural gas starts with 4 atoms of hydrogen (H), how many atoms of hydrogen should be in the products?

A 1 atom of hydrogen (H)

B 2 atoms of hydrogen (H)

C 4 atoms of hydrogen (H)

D 8 atoms of hydrogen (H)

30 Why is it important to conserve energy even from renewable resources?

A Renewable energy resources cannot be replaced after they are used.

B Using renewable energy resources causes more pollution than using nonrenewable resources.

C Renewable energy resources produce radioactive wastes.

D Every kind of renewable energy resource has some disadvantages.

31 Which ***best*** explains why wind energy is not used everywhere in the world?

A Wind farms contribute to global warming.

B Wind farms produce dangerous wastes.

C Wind farms must be built where winds blow steadily throughout the year.

D Wind farms produce air pollution.

Go to the next page.

32 Which is an example of a renewable energy resource?

A gasoline

B coal

C natural gas

D hydropower

33 Which term ***best*** describes the area of water that drains into a river?

A watershed

B aquifer

C estuary

D ocean

34 What is the ***most*** immediate effect of high levels of nitrates and phosphates in a body of water?

A The fish population decreases.

B The population of algae increases.

C The levels of dissolved oxygen decrease.

D The pH decreases.

35 Which is ***most likely*** to improve water quality?

A release of factory wastes into rivers

B fewer laws about water

C reduced use of pesticides

D increased use of fertilizers

36 Which describes an index fossil?

A It is found only in a small area.

B It is fairly common in many places.

C It is the fossil of a species that existed for a very long time.

D It is difficult to identify.

37 Fossils belonging to the genus *Paradoxides* are index fossils. These buglike sea creatures existed from about 513 to about 500 million years ago. What can a scientist conclude about a fossil clam found in the same rock as *Paradoxides*?

A The clam is more than 550 million years old.

B The clam is also a type of index fossil.

C The clam belongs to a species that existed for exactly 13 million years.

D The clam is about 500 to 513 million years old.

Go to the next page.

38 What is a scientist ***most likely*** to discover by studying ice cores?

A how Earth's atmosphere has changed over time

B how different types of animals have evolved and become extinct

C how faulting and folding has built mountains in the area

D how long ago the rocks in the area were formed

39 How are disease-causing bacteria, fungi, and parasites different from viruses?

A Viruses do not cause infectious diseases.

B Bacteria, fungi, and parasites consist of cells, and viruses do not.

C Antibiotics are used only to treat diseases caused by viruses.

D Diseases caused by bacteria, fungi, and parasites can be spread through the air.

40 Which disease is ***most likely*** to be treated with antibiotics?

A cold

B influenza

C pneumonia

D allergy

Go to the next page.

41 Which term ***best*** describes an organism that transmits a disease without getting sick itself?

A parasite

B vector

C host

D pathogen

42 Which of these is an example of biotechnology?

A using vaccines to prevent the spread of diseases

B using bioindicators to monitor water quality

C using fossils to study how Earth's organisms have changed

D using genetically modified bacteria to make human insulin

43 Which is a possible risk of gene-modified crop plants?

A They may help increase the world's food supply.

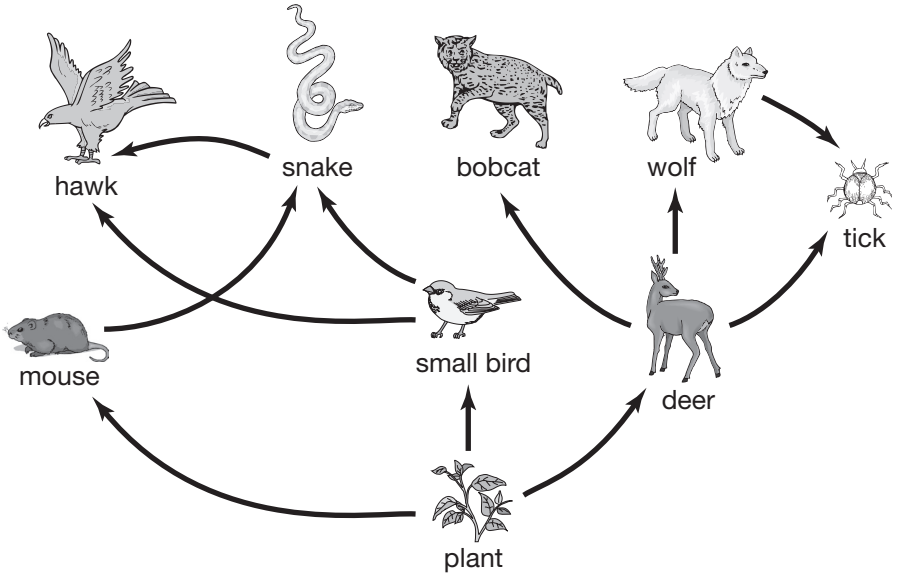
B They will allow farmers to reduce the use of pesticides.

C Fruits and vegetables from such plants stay fresh longer.

D Genes from the plants may cross over into wild plants.

Go to the next page.

44 Think about how energy and matter flow in this food web.



Which correctly describes an event in this food web?

A When a deer eats a plant, stored energy increases, and carbon moves from the plant to the deer.

B When a wolf eats a deer, stored energy decreases, and carbon moves from the deer to the wolf.

C When a tick bites a deer, stored energy decreases, and nitrogen moves from the tick to the deer.

D When a bobcat eats a deer, stored energy increases, and nitrogen moves from the bobcat to the deer.

Go to the next page.

45 Which of these organisms is a decomposer?

A rainbow trout

B button mushroom

C northern cardinal

D flowering dogwood

46 Which term ***best*** describes the process by which species of organisms change over time?

A evolution

B superposition

C classification

D extinction

47 Which statement ***best*** describes how genes are involved in natural selection?

A Genes determine an organism's visible characteristics.

B Genes change as an individual adapts to its environment.

C Genes are identical among the individuals in a population.

D Genes that improve survival are passed to the next generation.

Go to the next page.

48 Which condition is ***most likely*** to result in a species being unable to adapt to a changing environment?

A low competition

B high population

C low genetic variation

D high reproductive rate

49 In which process do cells take in carbon dioxide and use it to make food molecules?

A decomposition

B meiosis

C photosynthesis

D respiration

50 Which describes digestion in the human body?

A a process that breaks down food into smaller molecules that cells can use

B a process that releases energy from food molecules

C a process that delivers oxygen throughout the body

D a process by which the body gets rid of wastes

Go to the next page.

51 Table salt, or sodium chloride, has the chemical formula NaCl. How is sodium chloride classified?

A as an element

B as a compound

C as a mixture

D as a liquid

52 Which is an example of a chemical change?

A When water is boiled, bubbles of gas appear, rise to the surface, and escape.

B A small amount of red paint is mixed with yellow paint, creating orange paint.

C When hydrogen peroxide is put on a cut, oxygen bubbles away, leaving water behind.

D As water freezes, its molecules slow down and form ice crystals.

53 How is a physical change different from a chemical change?

A A physical change requires a change in energy.

B A physical change does not change the identity of a substance.

C In a physical change, the form or appearance of a substance changes.

D In a physical change, a new substance with different properties forms.

Go to the next page.

54 In a certain chemical reaction, the reactants contain 4 iron atoms and 6 oxygen atoms. The products also contain 4 iron atoms and 6 oxygen atoms. Which of these does the reaction illustrate?

A an unbalanced chemical equation

B the formation of a mixture

C the law of conservation of mass

D the law of superposition

55 Which problem is ***most likely*** to result from the use of wind power?

A Spinning turbine blades kill birds and bats.

B Tanker ships leak into the ocean.

C Harmful wastes must be stored for a long time.

D Carbon dioxide gas is released into the air.

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56 The table shows U.S. energy use by source for two different years.

U.S. Energy Use by Source

Energy Source	Percentage in 1950	Percentage in 2010
biomass and biofuel	0	4
coal	73	21
hydropower	1	3
natural gas	5	25
nuclear	0	9
oil	21	37
solar and wind	0	1

Which two nonrenewable energy sources increased the ***most*** in use from 1950 to 2010?

A biomass and biofuel

B coal and hydropower

C nuclear and natural gas

D natural gas and oil

57 Freshwater from the Neuse River meets salt water from the Atlantic Ocean in Pamlico Sound. Which term ***best*** describes Pamlico Sound?

A aquifer

B estuary

C ocean

D tributary

Go to the next page.

58 Red drum, or redfish, is North Carolina's official state saltwater fish. In which kind of ecosystem are red drum ***most likely*** found?

A river

B estuary

C stream

D lake

59 Which pair indicates a healthy water source?

A low turbidity and high pH levels

B high salinity and an absence of insect larvae

C high levels of dissolved oxygen and the presence of fish

D high levels of phosphates and algae

60 Based on radioactive dating, about how old have scientists determined Earth to be?

A 50,000 years

B 5 million years

C 4.5 billion years

D 14 billion years

Go to the next page.

61 A rare fossil shell is found in an area where faulting and folding have disturbed the order of the rock layers. Which would ***best*** determine the approximate age of this fossil?

A age of the rock layer above the fossil

B radioactive carbon-14 dating

C comparison to dinosaur fossils

D age of index fossils in the same rock layer

62 Most fossils are found in sedimentary rock. Which ***best*** explains how this type of rock forms?

A Sedimentary rock forms when melted rock cools and hardens.

B Sedimentary rock forms when layers of weathered material are pressed and cemented together.

C Sedimentary rock forms when existing rock is chemically transformed by heat and pressure.

D Sedimentary rock forms when faulting occurs along plate boundaries.

63 The Great Smoky Mountains are examples of mountains that were created by folding. What caused the rocks to fold?

A continents colliding

B the seafloor spreading

C volcanoes erupting

D climates changing

Go to the next page.

64 Which term describes the causes of chicken pox and the common cold?

A parasites

B fungi

C viruses

D bacteria

65 Which diseases can be treated with antibiotics?

A virus-caused diseases, such as polio and measles

B fungus-caused diseases, such as warts and yeast infections

C noninfectious diseases, such as diabetes and heart disease

D bacterial diseases, such as food poisoning and pneumonia

66 Cholera is a disease caused by bacteria that live in dirty water. Which situation is ***most likely*** to result in an epidemic of cholera?

A people not washing their hands thoroughly

B an infected person going on a long airplane trip

C people letting sewage get into drinking water

D people overusing antibiotics

Go to the next page.

67 How is an epidemic different from a pandemic?

A An epidemic involves a less serious disease.

B An epidemic involves a smaller geographic area.

C An epidemic refers to human diseases, and a pandemic refers to nonhuman diseases.

D An epidemic lasts for a longer time than a pandemic.

68 Which describes one of the earliest forms of biotechnology?

A splicing human genes into bacteria to produce insulin

B selectively breeding dogs to create a new breed

C producing a clone of a farm animal

D determining the sequence of genes in DNA fingerprinting

69 Which biotic factor would have the ***greatest*** impact on the number of rabbits in a meadow?

A water

B trees

C squirrels

D foxes

Go to the next page.

70 On the Serengeti Plain, zebras eat grass and giraffes eat the leaves at the tops of trees. Which term ***best*** describes the relationship between zebras and giraffes?

A coexistence

B competition

C mutualism

D predation

71 Which correctly describes an event in the carbon cycle?

A Animals take in carbon through respiration.

B Plants release carbon through photosynthesis.

C Plants and animals release carbon through decomposition.

D Plants and animals take in carbon through combustion.

72 The wings of bats and the arms of humans have similar bone structures but different functions. What does that evidence suggest?

A Bats once had arms instead of wings.

B Bats are more closely related to birds than to humans.

C Bats are classified in the same genus as humans.

D Bats and humans evolved from a common ancestor.

Go to the next page.

73 Which term describes the process by which organisms that are best suited to a particular environment survive and reproduce?

A competition

B genetic modification

C natural selection

D symbiosis

74 Which term describes the process that breaks down sugar to produce energy, water, and carbon dioxide?

A decomposition

B photosynthesis

C cellular respiration

D symbiosis

75 Proteins are necessary for growth and repair. Where do animals obtain the nitrogen they need for proteins?

A from nitrogen compounds in the soil

B from compounds in the food they eat

C from nitrogen gas in the air they breathe

D from the energy released by cellular respiration

STOP

Periodic Table of the Elements

1 IA																	18 VIIIA
1 **H** Hydrogen 1.008	2 IIA											13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	2 **He** Helium 4.003
3 **Li** Lithium 6.941	4 **Be** Beryllium 9.012											5 **B** Boron 10.81	6 **C** Carbon 12.01	7 **N** Nitrogen 14.01	8 **O** Oxygen 16.00	9 **F** Fluorine 19.00	10 **Ne** Neon 20.18
11 **Na** Sodium 22.99	12 **Mg** Magnesium 24.31	3 IIIB	4 IVB	5 VB	6 VIB	7 VIIB	8 VIIIB	9 VIIIB	10 VIIIB	11 IB	12 IIB	13 **Al** Aluminum 26.98	14 **Si** Silicon 28.09	15 **P** Phosphorus 30.97	16 **S** Sulfur 32.07	17 **Cl** Chlorine 35.45	18 **Ar** Argon 39.95
19 **K** Potassium 39.10	20 **Ca** Calcium 40.08	21 **Sc** Scandium 44.96	22 **Ti** Titanium 47.88	23 **V** Vanadium 50.94	24 **Cr** Chromium 51.99	25 **Mn** Manganese 54.94	26 **Fe** Iron 55.85	27 **Co** Cobalt 58.93	28 **Ni** Nickel 58.69	29 **Cu** Copper 63.55	30 **Zn** Zinc 65.39	31 **Ga** Gallium 69.72	32 **Ge** Germanium 72.61	33 **As** Arsenic 74.92	34 **Se** Selenium 78.96	35 **Br** Bromine 79.90	36 **Kr** Krypton 83.80
37 **Rb** Rubidium 85.47	38 **Sr** Strontium 87.62	39 **Y** Yttrium 88.91	40 **Zr** Zirconium 91.22	41 **Nb** Niobium 92.91	42 **Mo** Molybdenum 95.94	43 **Tc** Technetium (98)	44 **Ru** Ruthenium 101.07	45 **Rh** Rhodium 102.91	46 **Pd** Palladium 106.42	47 **Ag** Silver 107.87	48 **Cd** Cadmium 112.41	49 **In** Indium 114.82	50 **Sn** Tin 118.71	51 **Sb** Antimony 121.76	52 **Te** Tellurium 127.60	53 **I** Iodine 126.90	54 **Xe** Xenon 131.29
55 **Cs** Cesium 132.91	56 **Ba** Barium 137.33	57 **La** Lanthanum 138.91	72 **Hf** Hafnium 178.49	73 **Ta** Tantalum 180.95	74 **W** Tungsten 183.84	75 **Re** Rhenium 186.21	76 **Os** Osmium 190.23	77 **Ir** Iridium 192.22	78 **Pt** Platinum 195.08	79 **Au** Gold 196.97	80 **Hg** Mercury 200.59	81 **Tl** Thallium 204.38	82 **Pb** Lead 207.2	83 **Bi** Bismuth 208.98	84 **Po** Polonium (209)	85 **At** Astatine (210)	86 **Rn** Radon (222)
87 **Fr** Francium (223)	88 **Ra** Radium (226)	89 **Ac** Actinium (227)	104 **Rf** Rutherfordium (261)	105 **Db** Dubnium (262)	106 **Sg** Seaborgium (263)	107 **Bh** Bohrium (264)	108 **Hs** Hassium (269)	109 **Mt** Meitnerium (268)	110 **Ds** Darmstadtium (271)	111 **Rg** Roentgenium (272)	112 **Uub** Ununbium (277)						

58 **Ce** Cerium 140.12	59 **Pr** Praseodymium 140.91	60 **Nd** Neodymium 144.24	61 **Pm** Promethium (145)	62 **Sm** Samarium 150.36	63 **Eu** Europium 151.96	64 **Gd** Gadolinium 157.25	65 **Tb** Terbium 158.93	66 **Dy** Dysprosium 162.50	67 **Ho** Holmium 164.93	68 **Er** Erbium 167.26	69 **Tm** Thulium 168.93	70 **Yb** Ytterbium 173.04	71 **Lu** Lutetium 174.97
90 **Th** Thorium 232.04	91 **Pa** Protactinium 231.04	92 **U** Uranium 238.04	93 **Np** Neptunium (237)	94 **Pu** Plutonium (244)	95 **Am** Americium (243)	96 **Cm** Curium (247)	97 **Bk** Berkelium (247)	98 **Cf** Californium (251)	99 **Es** Einsteinium (252)	100 **Fm** Fermium (257)	101 **Md** Mendelevium (258)	102 **No** Nobelium (254)	103 **Lr** Lawrencium (262)

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