Sample Questions

S1 What is the first thing a student should do if an accident happens during a science experiment?

A report to the teacher
B clean the laboratory station
C locate the nearest exit
D put on safety goggles

S2 Which device is used to determine the volume of a liquid?

A anemometer
B graduated cylinder
C test tube
D thermometer
1 A wagon is pushed in a straight line. How would an increase in friction on the wagon wheels affect the wagon?
   A It would cause the wagon to move faster.
   B It would cause the wagon to change mass.
   C It would cause the wagon to change direction.
   D It would cause the wagon to slow down.

2 A runner measured the time it took him to run 5 km. What can he calculate from the distance and time measurements?
   A direction
   B mass
   C speed
   D force

3 Which best explains why a bicycle slows down when its brakes are applied?
   A The brakes heat the rubber on the bicycle tires.
   B The brakes add energy to the bicycle.
   C The brakes increase the force of gravity on the bicycle.
   D The brakes cause frictional forces on the wheels of the bicycle.
4 When the sun warms water, which resulting process occurs?
A precipitation  
B runoff  
C evaporation  
D condensation

5 Students observed a piece of iron change from shiny to rusty. What caused this change?
A a chemical reaction  
B a heat reaction  
C a cold reaction  
D a physical reaction

6 Which is the **best** example of the transfer of heat by radiation?
A water boiling  
B ice melting  
C a hot air balloon rising  
D a lightbulb glowing
7 Jason fills a glass container completely with water and screws the lid on tightly. He places the container in a freezer. Which will **most likely** result?

A The container will prevent the water from freezing.

B The water will freeze and take up less space in the container.

C The water in the container will expand when it freezes and cause the container to crack.

D The container will absorb heat from the water, causing it to crack.

8 Which is **most** responsible for the changes in seasons?

A the jet stream

B the ocean currents

C the distance from Earth to the sun

D the tilt of Earth on its axis

9 Which type of animal usually eats both producers and consumers?

A an omnivore

B a carnivore

C a herbivore

D a predator
10 In North Carolina, the wind is blowing from the north. If the wind changes direction and begins to blow from the south, what will most likely result?

A The temperatures will increase.
B The temperatures will decrease.
C The air pressure will increase.
D The wind speeds will decrease.

11 Which best explains why a storm that affects an area in the western United States may affect an area in the eastern United States a few days later?

A The jet stream winds blow storms from east to west.
B The jet stream winds blow storms from west to east.
C Cool Gulf Stream water causes storms to form in the east.
D Warm Gulf Stream water causes storms to form in the west.

12 Which is a characteristic of most single-celled organisms?

A They have a complex nervous system.
B They contain several different types of cells.
C They perform all life processes.
D They have a circulatory and a respiratory system.
13 Which statement best describes how a multicellular organism survives?

A Every cell carries out the same functions for the survival of the organism.
B The cells all have the same structures that allow the organism to survive.
C All life processes are performed by each cell for the survival of the organism.
D The cells have different functions, and together they are essential for the survival of the organism.

14 What is the relationship between the respiratory system and the circulatory system?

A The respiratory system exchanges oxygen and carbon dioxide with the circulatory system.
B The respiratory system exchanges oxygen and carbon monoxide with the circulatory system.
C The respiratory system exchanges oxygen and sugar with the circulatory system.
D The respiratory system exchanges oxygen and nitrogen with the circulatory system.

15 In what way are the digestive and circulatory systems alike?

A Both protect organs in the body.
B Both control movement of the body.
C Both absorb gases or nutrients into the body.
D Both provide structural support for the body.
16 Which has the **greatest** effect on the amount of salt in a salt marsh?
- A the number of animals living in the marsh
- B the closeness of the marsh to the ocean
- C the depth of the water in the marsh
- D the temperature of the water in the marsh

17 Which classification **best** describes herbivores?
- A producers
- B consumers
- C predators
- D decomposers

18 What will be **most** affected if the decomposers in an ecosystem are removed?
- A the spread of disease
- B the availability of water
- C the quality of soil
- D the distribution of organisms
19 A mother rabbit has a litter. One of the babies is born with one long ear and one short ear. What most likely caused this one rabbit to be born with one short ear?

A The mother rabbit had previously lost an ear in an accident.
B The mother rabbit became sick before she gave birth.
C A mutation occurred during the development of this one rabbit.
D This one rabbit received less nutrition than the other rabbits before it was born.

20 Which is an example of a trait that is inherited?

A dimples
B intelligence
C weight
D favorite color

21 A ball is kicked and rolls along a level field until it comes to a stop. What is most responsible for the ball coming to a stop?

A air
B gravity
C mass
D friction
22 If a car is moving backward along a road, can its speed be measured?
   A Yes, it can, because the car does not have friction acting on it.
   B Yes, it can, because the car travels a distance in a certain amount of time.
   C No, it cannot, because speed can only be measured if the car is moving forward.
   D No, it cannot, because the distance traveled backward by a car cannot be measured.

23 Scientists discover an asteroid that is moving through space. What information is needed to determine the average speed of the asteroid?
   A the mass and size of the asteroid
   B the distance the asteroid is from Earth
   C the direction the asteroid is moving and its distance from Earth
   D how far the asteroid has moved in 24 hours

24 One morning, a student notices that the grass in the area is wet, although it had not rained during the night. What could have caused the grass to be wet?
   A During the night, water had evaporated from the trees in the area.
   B The air above the ground became warmer during the night and caused precipitation.
   C When the air cooled above ground during the night, water vapor condensed on the grass.
   D The grass soaked up water from the ground during the night.
25 Two liquids are poured together, and a solid substance forms with no liquid remaining. Liquid 1 has a mass of 200 grams, and liquid 2 has a mass of 100 grams. What would be the total mass of the solid substance formed?

A 100 grams
B 150 grams
C 250 grams
D 300 grams

26 Which is the best example of a new substance forming?

A lighting a match
B cutting a piece of paper
C popping a balloon
D hitting a nail with a hammer

27 Stirring a cup of hot tea causes a metal spoon to get warm. Which statement best explains why the spoon gets warm?

A Heat energy transfers from the metal spoon to the hot liquid.
B Heat energy transfers from the hot tea to the spoon.
C Heat energy transfers from the air to the hot liquid, and then to the spoon.
D Heat energy transfers from the hot liquid to the cup, and then to the spoon.
28 Which material is **best** used to keep cold drinks from getting warm too quickly?

A glass, because it is a good conductor of heat
B foam, because it is a poor conductor of heat
C metal, because it radiates heat
D paper, because it conducts heat

29 Which **best** describes the cause of day-to-day weather changes?

A the rotation of Earth
B the size of Earth
C moving air masses
D action of the winds

30 Students report that the sky in their area has mostly cirrus clouds. What are **most likely** the weather conditions in the area?

A rainy
B cold
C windy
D fair
31 Which **best** describes a hurricane?
   A a low-pressure weather system
   B a high-pressure weather system
   C a cold front
   D a stationary front

32 Which statement **best** explains how a bacterial cell is capable of surviving as a single-celled organism?
   A It is able to create new cells more slowly than other kinds of cells.
   B It is large enough to capture the food it needs for growth.
   C It is so small, it can survive in almost any place.
   D It has the ability to carry out all of its life functions.

33 Which instrument is **best** used to predict weather changes?
   A a hygrometer
   B an anemometer
   C a thermometer
   D a barometer
34 In what way are the circulatory system and the nervous system similar?
A They both perform the same function.
B They are both structural systems.
C They are both transport systems.
D They both involve the same organs.

35 Which system in the human body includes the heart, blood, arteries, and veins?
A cardiovascular
B digestive
C muscular
D respiratory

36 How does the energy from the sun influence the water cycle?
A by trapping water particles in clouds
B by turning liquid water into water vapor
C by causing water to precipitate
D by creating winds in the atmosphere
37 This is a food chain that includes grass, a grasshopper, and a bird.

\[ \text{grass} \rightarrow \text{grasshopper} \rightarrow \text{bird} \]

How is the grass in this food chain **best** described?
A  It is a producer, because it makes its own food.
B  It is a producer, because it is eaten by consumers.
C  It is a consumer, because it gets energy from producers.
D  It is a decomposer, because it breaks down sunlight.

38 Which would **most likely** cause a decrease in a population of herbivores?
A  an increase in the number of producers
B  a decrease in the types of decomposers
C  an increase in the types of plants
D  an increase in the number of carnivores

39 Which of these traits is **most** influenced by a person’s environment?
A  ability to roll the tongue
B  blood type
C  weight
D  eye color
40 Which is most likely the reason parents and their children have similar physical traits?

A  They live in the same home.
B  They have similar genetic structures.
C  They are born in similar environments.
D  They have similar blood types.

41 What causes a wagon to speed up when going down a hill?

A  gravity
B  friction
C  air pressure
D  mass

42 A bowling ball moves across a flat surface at 7 feet per second. If a student is asked to calculate the total distance traveled by the ball, what other information does the student need to know?

A  amount of friction between the ball and the surface
B  amount of force applied to the ball
C  total time the ball rolled
D  mass of the ball
43 How do plants return water back into the environment?
   A by evaporation
   B by condensation
   C by runoff
   D by transpiration

44 Water droplets forming on the outside of a cold glass of water on a hot, summer day is an example of which part of the water cycle?
   A condensation
   B evaporation
   C precipitation
   D transpiration

45 After lake water flows through a dam, which processes are most responsible for helping replace the water in the lake?
   A precipitation and runoff
   B transpiration and condensation
   C condensation and runoff
   D transpiration and precipitation
46 Which is a trait children *most likely* inherit from their parents?
A favorite color
B food preference
C freckles
D weight

47 Why are liquids sometimes used in a thermometer?
A because most liquids condense when heated and evaporate when cooled
B because most liquids melt when heated and freeze when cooled
C because most liquids contract when heated and expand when cooled
D because most liquids expand when heated and contract when cooled

48 On a June day, a warm, moist air mass slowly passes over a colder air mass in North Carolina. What will *most likely* happen next?
A Rain will fall.
B Cirrus clouds will form.
C Skies will clear.
D Atmospheric pressure will rise.
49 Which is **most** responsible for the movement of weather systems across the United States?

A the Gulf Stream  
B the prevailing westerlies  
C the southeast trade winds  
D the jet stream

50 Which **best** describes how the Gulf Stream affects the areas along the coast of North Carolina?

A It causes winds to move from north to south during the winter.  
B It causes winds to move from north to south during the summer.  
C It causes land temperatures along the coast to be colder in the winter.  
D It causes land temperatures along the coast to be milder in the winter.

51 In what way are insects and humans similar?

A Both are single-celled organisms.  
B Both are multicellular organisms.  
C Both have cells that capture sunlight to make food.  
D Both have cells that carry out all life functions.
52 Which human body systems are located throughout most of the body?

A digestive and respiratory  
B skeletal and respiratory  
C nervous and circulatory  
D respiratory and circulatory

53 A mouse eats seeds and insects. Which best describes the role of the mouse?

A consumer  
B decomposer  
C herbivore  
D producer

54 What would most likely result if all plants in an area were destroyed?

A Consumer populations would increase because more sunlight would reach the ground.  
B Decomposer populations would increase because more sunlight would reach the ground.  
C Consumer populations would decrease because plants provide them with water.  
D Consumer populations would decrease because plants provide them with energy.
55 What would **most likely** happen if all of the decomposers in an ecosystem were removed?

A The animals in the ecosystem would die because of the spread of disease.
B The plants in the ecosystem would eventually die because of a lack of nutrients in the soil.
C The plants in the ecosystem would begin to die out because of a decrease in available water.
D The animals in the ecosystem would eat other types of food because of a decrease in producers.

56 A food chain in an ecosystem includes blackberry bushes, deer, and wolves.
   • Deer eat blackberries.
   • Wolves eat deer.

If the population of wolves decreases, how will this affect the population of blackberry bushes?

A It will decrease because there will be fewer deer.
B It will increase because there will be fewer deer.
C It will decrease because there will be more deer.
D It will increase because there will be more deer.

57 Some people have a “hitchhiker’s” thumb that allows them to bend their thumbs more than other people. How do these people **most likely** get this trait?

A They learn it from friends.
B They inherit it from their parents.
C They get it as a result of an illness.
D They get it as a result of their jobs.
58 Which statement best describes the relationship between the nervous system and the muscular system?
   A The nervous system controls the muscular system.
   B The muscular system controls the nervous system.
   C The nervous system provides nutrients and oxygen for the muscular system.
   D The muscular system provides nutrients and oxygen for the nervous system.

59 Which characteristic is the best example of an inherited trait?
   A short hair
   B eye color
   C pierced ears
   D long fingernails

60 Which is an example of a noninherited trait?
   A shape of face
   B hair color
   C food preference
   D tongue rolling
Directions:

This is the end of the science test.

1. Look back over your answers for the test questions.

2. Put all of your papers inside your test book and close your test book.

3. Stay quietly in your seat until your teacher tells you that testing is finished.
# Grade 5 Science

## RELEASED Items

### 2019–2020

### Answer Key

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