North Carolina EOG 2018 Grade 8 Science

Exam Materials
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Released Items

Grade 8 Science

North Carolina End-of-Grade Assessment

Public Schools of North Carolina
Department of Public Instruction | State Board of Education
Division of Accountability Services/North Carolina Testing Program

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

STOP

1 Which is a compound?

A sodium

B sugar

C nitrogen

D air

2 This table provides information about some group 1 elements.

Element	**Melting Point** (°C)
3 Li **Lithium** 6.941	181
11 Na **Sodium** 22.99	98
19 K **Potassium** 39.10	63
37 Rb **Rubidium** 85.47	**?**
55 Cs **Cesium** 132.91	29
87 Fr **Francium** (223)	27

Which is the ***best*** estimate of the melting point of Rubidium (Rb)?

A 25°C

B 40°C

C 75°C

D 184°C

Go to the next page.

3 Two different liquids are poured together in an open container. Bubbles begin to form. After the bubbling stops, it is determined that the total weight of the two liquids is less than before they were poured together. Which ***best*** describes this observation?

A Some of the atoms during the reaction escaped into the air.

B Some of the atoms during the reaction were destroyed.

C Some of the atoms during the reaction became heavier.

D Some of the atoms during the reaction changed to a different kind of atom.

4 This is a chemical reaction for the decomposition of carbonic acid into water and carbon dioxide.

$$H_2CO_3 \rightarrow H_2O + CO_2$$

How does the reaction support the Law of Conservation of Mass?

A Several molecules of water are produced.

B The mass of carbon atoms is reduced during the reaction.

C The mass of the atoms in the reactant equals the mass of the atoms in the products.

D The mass of hydrogen atoms is the only thing that remains the same before and after the reaction.

5 Which ***best*** describes a method of obtaining energy that may cause changes in water temperature and harm to fish populations?

A burning coal

B using ethanol in cars

C installing solar panels on a home

D generating electricity in a hydroelectric power plant

6 Which is a nonrenewable resource?

A oil

B sunlight

C water

D wood

7 How would a large increase in the salinity of an estuary ***most likely*** affect the ecosystem of the estuary?

A All organisms would die.

B All organisms would continue to live as they now do.

C The number of salt-tolerant organisms would increase, and the number of salt-intolerant organisms would decrease.

D The number of salt-intolerant organisms would increase, and the number of salt-tolerant organisms would decrease.

Go to the next page.

8 Which would indicate the water in a lake is ***not*** safe for drinking?

A many varieties of fish in the lake

B high dissolved-oxygen levels in the lake

C cold water temperature of the lake

D high turbidity levels in the lake

9 A geologist identifies the identical index fossils in rock layers from two different areas. Which conclusion is ***best*** supported by this discovery?

A The deposition rate of the two rock layers was identical.

B The fossil organism evolved independently in the two separate areas.

C The two rock layers were deposited at approximately the same time.

D The index fossil will also occur in sediment deposited on top of these rock layers.

10 Which supports the theory that some mountains were once at the bottom of an ocean?

A There are underwater mountains on the ocean floor today.

B Freshwater rivers flow to the ocean.

C Fossils of marine organisms are found on the tops of some mountains.

D Both mountains and ocean floors have similar minerals in their rocks.

11 Which disease is caused by a fungal infection?

A intestinal worms

B influenza

C chicken pox

D athlete's foot

12 How are pandemics different than epidemics?

A Pandemics affect blood; epidemics affect skin.

B Pandemics affect many countries or states; an epidemic is more localized.

C Pandemics are caused by bacteria; epidemics are caused by viruses.

D Pandemics are spread through the air; epidemics are spread through the water.

13 Which is one possible human benefit from biotechnology research?

A producing crops that can grow in areas where they normally do not grow

B producing new types of disease-causing viruses

C increasing the ability to turn ocean water to freshwater

D creating new types of buildings that can withstand hurricanes

14 How has genetic engineering helped farming?

A by developing better fertilizer for crops

B by creating crops that resist some diseases

C by producing soil that makes crops grow better

D by producing faster ways to harvest crops

15 In some environments, wolves prey on deer for their source of food. If all of the wolves were taken from the environment, what would ***most likely*** happen to the deer population?

A The deer population would increase and begin to compete for food.

B The deer population would become larger and healthier animals.

C The deer population would decrease, because there would be an increase in disease.

D The deer population would change color, because they would not have to hide from wolves.

16 How are mutualism and parasitism different?

A Both organisms benefit in mutualism, while in parasitism only one organism benefits at the other's expense.

B Both organisms benefit in parasitism, while in mutualism only one organism benefits at the other's expense.

C Both organisms benefit in mutualism, while in parasitism one organism benefits, and the other is neither harmed nor benefits.

D Both organisms benefit in parasitism, while in mutualism one organism benefits, and the other is neither harmed nor benefits.

17 What would have the greatest long-term impact on reducing the amount of carbon dioxide in the air?

A planting trees around a farm

B cutting down trees around a farm

C increasing the number of livestock on a farm

D decreasing the number of livestock on a farm

18 Which evidence supports the idea that life on Earth has continually evolved?

A evidence from layers of tree rings

B evidence from rock layers, fossils, and ice cores

C evidence gathered from melting glaciers

D evidence that the climate has changed over the past 100 years

19 Which would ***most likely*** increase the genetic variation in a population of organisms?

A increase in diseases

B decrease in diseases

C increase in mutations

D decrease in mutations

20 Which is the primary source of energy for ***most*** cells in the body?

A sugar

B fat

C protein

D vitamin

21 Which is classified as an element?

A carbon dioxide

B iron

C vinegar

D water

22 Which ***best*** describes the sequence of the elements in Period 5 of the periodic table?

A highly reactive gases, relatively nonreactive metals, metalloids, very nonreactive gases, nonreactive nonmetals

B highly reactive metals, relatively nonreactive metals, metalloids, reactive nonmetals, nonreactive gases

C nonreactive gases, metalloids, nonreactive metals, highly reactive metals, highly reactive gases

D nonreactive gases, nonreactive metals, highly reactive metals, metalloids, reactive nonmetals, reactive gases

23 Which statement is true about a chemical reaction?

A The physical states of the atoms in the reactants determine the products.

B Some of the atoms in the reactants will be a part of the products.

C The number of atoms in the reactants determines the products.

D All of the atoms in the reactants will be a part of the products.

24 Which are ***most*** responsible for creating acid rain pollution?

A nuclear power plants

B coal-burning power plants

C hydroelectric power plants

D wood-burning power plants

Go to the next page.

25 The table shows the estimated energy production (in quadrillions of BTUs) from fossil fuels over a 20-year period.

Fuel Type	1999	2009	2019
coal	6.1	11.2	10.9
oil	10.6	17.8	20.5
natural gas	15.1	16.1	17.1

Which conclusion is ***best*** supported by the data?

A Dependency on oil has increased, therefore energy production from oil is increasing.

B Dependency on oil has increased, therefore energy production from natural gas is decreasing.

C Dependency on coal has increased, therefore energy production from coal is increasing.

D Dependency on coal has increased, therefore energy production from natural gas is decreasing.

26 Which ***best*** explains why all of the Earth's freshwater is not available for human use?

A Most of Earth's freshwater is only in lakes.

B Most of Earth's freshwater is underground.

C Most of Earth's freshwater is still in the water cycle.

D Most of Earth's freshwater is frozen water.

27 How can upwellings improve fishing for ocean fishermen?

A They cause the ocean water to get warmer.

B They cause ocean currents to remain calm.

C They bring nutrients from the cold, deep ocean waters.

D They bring ocean currents from the equator.

28 If a lake has excess levels of phosphates and nitrates in its water, what will ***most likely*** result?

A The temperature of the lake water will decrease.

B The turbidity levels of the lake will decrease.

C The dissolved-oxygen levels in the lake will increase.

D The growth of algae in the lake will increase.

29 Which is the ***most*** accurate method scientists use to predict the age of Earth?

A relative dating of rock layers

B radioactive dating of rocks

C comparing the ages of different fossils

D investigating core samples from the Arctic

30 Which is the ***best*** reason for scientists to study ice cores obtained from Earth's ice caps?

A to evaluate potential oil drilling sites

B to study the quality of water stored in glaciers

C to determine the rate of melting in polar regions

D to study past climates by analyzing trapped gases and particles

31 What is the ***most likely*** result of overusing a particular antibiotic?

A fewer infections caused by bacteria resistant to the antibiotic

B more infections caused by bacteria resistant to the antibiotic

C fewer infections caused by viruses and bacteria

D more infections caused by viruses

32 Which illness could ***most likely*** be treated with antibiotics?

A influenza

B common cold

C strep throat

D diabetes

33 How can biotechnology help farmers overcome sudden changes in the global climate?

A by changing the types of soil in which the crops are planted

B by developing crops that are resistant to adverse weather

C by rotating the crops within the same field

D by only planting crops in the winter

34 How has biotechnology helped to improve the agricultural industry?

A by developing irrigation systems that cover a large land area

B by creating some crops that resist certain insects

C by producing soil free of decomposers

D by developing machines that help farmers harvest crops faster

35 The table shows the food choices for two species of birds.

Bird	Food
Questor	small seeds, flying insects
Wood Plaxer	large berries, beetles

Which will ***most likely*** happen to Questors as a result of Wood Plaxers migrating to their habitat?

A The Questors will compete with the Wood Plaxers for food resources.

B The Questors will be forced to fly to a different habitat.

C The two species will become extinct.

D The two species will coexist with no competition.

36 What happens to ***most*** of the energy as it moves throughout a food web?

A It is changed into light energy.

B It is changed into heat energy.

C It is changed into mass.

D It is changed into decomposers.

37 Which is the ***best*** evidence for evolution?

A new rock layers containing fossils of simple organisms

B new rock layers containing fossils unlike existing organisms

C old rock layers containing fossils unlike existing organisms

D old rock layers containing fossils of complex organisms

38 Which ***best*** explains why mammals became dominant after the mass extinction of the dinosaurs?

A They had traits that helped them adapt to environmental changes.

B They were larger than dinosaurs and ate different foods.

C They lived in different areas on Earth than dinosaurs.

D They were able to hibernate for thousands of years.

39 Which demonstrates how genetic variation may result from a change in the environment where an animal lives?

A A salmon swims faster as it enters colder waters.

B A snake increases its body temperature because it moves on top of a rock in direct sunlight.

C A beetle stands out to predators because it moves among plants that have colors different than its own.

D An arctic fox changes its color over time because it migrates to an area with a different climate.

40 Where do plants get the food they need for energy?

A They absorb it directly from the sun.

B They absorb it directly from the soil.

C They produce it during photosynthesis.

D They receive it from atmospheric gases.

41 Chlorine has 7 valence electrons. With what group of elements will chlorine ***most*** readily bond?

A group 1

B group 2

C group 16

D group 18

42 Which is the ***best*** example of a chemical change?

A butter melting

B egg cooking

C paper tearing

D water evaporating

43 Which chemical equation ***best*** represents the Law of Conservation of Mass?

A $H + O \rightarrow H_2O$

B $H_2 + O_2 \rightarrow H_2O$

C $2H_2 + O_2 \rightarrow 2H_2O$

D $H_2 + O_2 \rightarrow 2H_2O_2$

44 Which is ***most likely*** a major concern associated with burning fossil fuels?

A Burning fossil fuels can pollute the oceans.

B Burning fossil fuels can remove harmful chemicals from precipitation.

C Burning fossil fuels can remove carbon dioxide from the atmosphere.

D Burning fossil fuels can produce smog, which can cause respiratory illnesses.

45 Which action shows concern for the environment with regards to the resources of the oceans?

A developing technology which will allow for an increase in fish harvesting

B allowing factories to release untreated wastewater into the oceans

C filling in oceanfront wetlands in order to extend beachfront properties

D setting limits on fish harvesting in the oceans

46 What effect does the water cycle have on the total amount of water on Earth?

A The total amount of water on Earth is constantly increasing.

B The total amount of water on Earth is constantly decreasing.

C The total amount of water on Earth remains relatively constant.

D The total amount of water on Earth changes due to periods of global warming and cooling.

47 Which characteristic of water quality provides the ***most*** information regarding the health of a water system?

A clarity

B temperature

C concentration of heavy metals

D presence of indicator species

48 Where is ***most*** of Earth's freshwater located?

A in the clouds

B in the ice caps

C in the ocean

D in the ground

49 Which is the ***most*** accurate way of determining the age of a fossil?

A radioactive dating

B relative dating

C dating index fossils

D dating the rock layers above the fossil

50 Which allows scientists to investigate what Earth's climate was like over the past 740,000 years?

A volcanic deposits

B fossils

C faults

D ice cores

51 Which ***best*** describes uniformitarianism?

A The time it takes for erosion to occur has changed since Earth first formed.

B The movement of the continents no longer occurs because of changes in ocean currents.

C The processes that shape the Earth continue as they have since the Earth formed.

D The formation of rock layers has slowed because humans have altered the environment.

52 Many infectious diseases have been nearly eliminated worldwide. Why should global studies of infectious diseases continue?

A All infectious disease organisms are fatal.

B All infectious diseases are resistant to any form of treatment.

C All infectious disease organisms have the ability to mutate, adapt, and survive.

D All infectious diseases are caused by viruses that do not respond to antibiotics.

53 Scientists have been able to cause some bacteria to produce insulin. In which area of science would these scientists ***most likely*** work?

A biotechnology

B nuclear engineering

C marine biology

D chemistry

54 If a company genetically modifies corn to produce an odor that repels insects, which ***best*** describes how the corn was modified?

A by crop rotation techniques

B by chemical exposure

C by harvesting at different times

D by techniques used in biotechnology

55 Which ***best*** represents the flow of energy within an aquatic ecosystem?

A algae → insects → fish → turtle → sunlight

B insects → algae → fish → turtle → sunlight

C sunlight → insects → algae → fish → turtle

D sunlight → algae → insects → fish → turtle

56 If a bat, an alligator, and a bird evolved from a common ancestor, what ***most likely*** can be concluded?

A They have similar anatomical structures.

B They live in the same part of the world.

C They are in the same biological classification.

D They are able to survive changes in their environments.

57 Recent changes in species can be found in the upper layers of rock. This provides a link between which two scientific ideas?

A cell theory and the theory of evolution

B the periodic nature of the elements and cell theory

C the theory of evolution and the Law of Superposition

D the Law of Superposition and the periodic nature of the elements

58 Which of these would ***most likely*** happen to a species that is not able to adapt to a changing environment?

A The species would become extinct over time.

B The species would develop mutated cells.

C The species would develop resistance to disease.

D The species would change the environment.

59 A runner is preparing to run a long race. Which would provide the highest level of energy for the runner?

A minerals

B carbohydrates

C proteins

D vitamins

60 Why are digestion and respiration important to the body?

A They control the production of hormones in the body.

B They build muscle and bone that the body needs.

C They store food for the body.

D They help provide the energy needed for body functions.

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.**

STOP

Grade 8 Science
RELEASED Items
2019–2020
Answer Key

Item Number	Type	Key	Domain
S1	MC	A	
S2	MC	B	

Item Number	Type	Key	Domain
1	MC	B	8.P.1.1
2	MC	B	8.P.1.2
3	MC	A	8.P.1.3
4	MC	C	8.P.1.4
5	MC	A	8.P.2.1
6	MC	A	8.P.2.2
7	MC	C	8.E.1.2
8	MC	D	8.E.1.3
9	MC	C	8.E.2.1
10	MC	C	8.E.2.2
11	MC	D	8.L.1.1
12	MC	B	8.L.1.2
13	MC	A	8.L.2.1
14	MC	B	8.L.2.1
15	MC	A	8.L.3.1

Item Number	Type	Key	Domain
16	MC	A	8.L.3.2
17	MC	A	8.L.3.3
18	MC	B	8.L.4.1
19	MC	C	8.L.4.2
20	MC	A	8.L.5.1
21	MC	B	8.P.1.1
22	MC	B	8.P.1.2
23	MC	D	8.P.1.4
24	MC	B	8.P.2.1
25	MC	A	8.P.2.2
26	MC	D	8.E.1.1
27	MC	C	8.E.1.2
28	MC	D	8.E.1.3
29	MC	B	8.E.2.1
30	MC	D	8.E.2.2
31	MC	B	8.L.1.1
32	MC	C	8.L.1.1
33	MC	B	8.L.2.1
34	MC	B	8.L.2.1
35	MC	D	8.L.3.2
36	MC	B	8.L.3.3
37	MC	C	8.L.4.1
38	MC	A	8.L.4.2
39	MC	D	8.L.4.2
40	MC	C	8.L.5.1

Item Number	Type	Key	Domain
41	MC	A	8.P.1.2
42	MC	B	8.P.1.3
43	MC	C	8.P.1.4
44	MC	D	8.P.2.1
45	MC	D	8.P.2.2
46	MC	C	8.E.1.1
47	MC	D	8.E.1.3
48	MC	B	8.E.1.1
49	MC	A	8.E.2.1
50	MC	D	8.E.2.2
51	MC	C	8.E.2.2
52	MC	C	8.L.1.1
53	MC	A	8.L.2.1
54	MC	D	8.L.2.1
55	MC	D	8.L.3.3
56	MC	A	8.L.4.1
57	MC	C	8.L.4.1
58	MC	A	8.L.4.2
59	MC	B	8.L.5.2
60	MC	D	8.L.5.2