

**Grade 8 Posttest****Directions:** Read the questions. Choose the truest possible answer.

1. Which of these statements is an example of a good hypothesis?
  - (A) The tennis ball rolled 10 meters in 5.8 seconds.
  - (B) Copper conducts heat twice as fast as tungsten.
  - (C) Did the ancient Egyptians know how to produce electricity?
  - (D) The king cobra is the most terrifying snake on Earth.
2. Which of the following is an example of a good scientific observation?
  - (F) The elephant's leg felt like the bark of a tree.
  - (G) The bacteria looked unhealthy when bleach was added to the solution.
  - (H) The watermelon is 0.5 meters long and weighs 10 kilograms.
  - (J) The baseball will travel 80 meters in 2 seconds.
3. What is usually the last step of the scientific method?
  - (A) to make observations
  - (B) to collect data
  - (C) to test a hypothesis
  - (D) to draw conclusions
4. Which of the following has no place in a scientific statement?
  - (F) a belief
  - (G) a theory
  - (H) a law
  - (J) a hypothesis
5. The one factor that you change in a scientific experiment is referred to as the \_\_\_\_\_.
  - (A) constant
  - (B) control
  - (C) independent variable
  - (D) dependent variable
6. Which of the following is not a kind of scientific classification?
  - (F) the Mohs Scale of Hardness
  - (G) plant taxonomy
  - (H) carnivorous animals
  - (J) solar flares
7. Electrons in an atom \_\_\_\_\_.
  - (A) are stationary, and cover the surface of the nucleus
  - (B) are stationary, and are all the same distance from the nucleus
  - (C) travel around the nucleus in one specific path, forming rings
  - (D) travel around the nucleus in an unpredictable path, forming a cloud



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8. What is the half-life of a sample of radioactive material?
- (F) the average number of particles ejected by the material per year
  - (G) the approximate number of people exposed to the material per year
  - (H) the amount of time it takes for half of the sample to decay
  - (J) the amount of time a person can be safely exposed to the sample
9. Which of the following is true regarding enzymes and catalysts?
- (A) A catalyst is a type of enzyme.
  - (B) An enzyme is a type of catalyst.
  - (C) A catalyst is usually changed by the reaction it is involved in.
  - (D) A catalyst is always shown in chemical equations it is involved in.
10. The way a mineral reflects light is its \_\_\_\_\_.
- (F) streak
  - (G) luster
  - (H) specific gravity
  - (J) cleavage
11. One element changes into another during radioactive decay, which is known as the process of \_\_\_\_\_.
- (A) photosynthesis
  - (B) respiration
  - (C) transmutation
  - (D) osmosis
12. The rate of decay of a nucleus is measured by its \_\_\_\_\_.
- (F) circumference
  - (G) diameter
  - (H) half-life
  - (J) shelf-life
13. What scientific technique helps archeologists determine when an organism may have lived?
- (A) hydrogen bonding
  - (B) atomic time
  - (C) carbon dating
  - (D) blood typing
14. Which label would *not* be represented on the periodic table?
- (F) atomic symbol
  - (G) volume
  - (H) element
  - (J) atomic mass



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15. In which of the following does a chemical reaction take place?
- (A) setting a table
  - (B) folding a newspaper
  - (C) lighting a match
  - (D) riding a bicycle
16. Which is an example of sublimation?
- (F) A glass rod melts when placed in a flame.
  - (G) A piece of dry ice produces a cloud of gas.
  - (H) A drop of water forms on grass in the morning.
  - (J) A puddle of water disappears during a hot day.
17. The opposite of condensation would be \_\_\_\_\_.
- (A) vaporization
  - (B) precipitation
  - (C) freezing
  - (D) percolating
18. How do you estimate pressure in an equation?
- (F) divide force by speed
  - (G) divide density by volume
  - (H) divide force by area
  - (J) divide area by volume
19. As volume decreases, \_\_\_\_\_ increases.
- (A) gravity
  - (B) balance
  - (C) density
  - (D) pressure
20. Salt water is denser than fresh water. Salt water also has a higher boiling point than fresh water. Which type of water produces a greater buoyant force?
- (F) saltwater, because it is denser
  - (G) freshwater, because it is less dense
  - (H) saltwater, because it has a higher boiling point
  - (J) freshwater, because it has a lower boiling point
21. Dividing distance by time will help you estimate \_\_\_\_\_.
- (A) acceleration
  - (B) speed
  - (C) density
  - (D) displacement



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22. Which of the following is the clearest example of Newton's third law of motion?
- (F) A skydiver quickly accelerates to over 100 mph.
  - (G) A person not wearing a seatbelt slides forward when the car slows down.
  - (H) A coffee cup pushes down on a table with the same force the table pushes up on the cup.
  - (J) A car engine becomes very hot as its parts move and rub against one another.
23. Kyauk tosses a ball in the air and, four seconds later, catches it in the same spot from which she tossed it. Which of the following did not change about this ball?
- (A) the distance it traveled from 0 to 4 seconds
  - (B) its overall displacement from 0 to 4 seconds
  - (C) its speed between 0 and 4 seconds
  - (D) its velocity between 0 and 4 seconds
24. What word is used to describe the repeating pattern of atoms within a mineral?
- (F) spherical
  - (G) nuclear
  - (H) crystalline
  - (J) sedimentary
25. Why are fungi unable to go through photosynthesis?
- (A) They have cell walls.
  - (B) They lack chlorophyll.
  - (C) They are not plants.
  - (D) They lack leaves.
26. A flower has two possible alleles for its color. The dominant allele, R, makes a flower red, while the recessive allele, r, makes it white. Which of the following combinations of alleles will make a flower red?
- (F) rr only
  - (G) Rr only
  - (H) RR only
  - (J) RR or Rr
27. A bullfrog starts its life from an egg that hatches into a larva or tadpole stage. After a certain period of time, the tadpole changes into the adult frog. This particular life cycle is known as \_\_\_\_\_.
- (A) decomposition
  - (B) transmutation
  - (C) complete metamorphosis
  - (D) incomplete metamorphosis
28. An antelope grazes on lush grasses on the African plains. The grass would occupy which level of the food chain?
- (F) primary consumer
  - (G) secondary consumer
  - (H) decomposer
  - (J) producer

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29. Which of the following parts of an ecosystem would be considered abiotic?
- (A) a killer whale
  - (B) a painted turtle
  - (C) a willow tree
  - (D) a mud puddle
30. When musk oxen feel threatened by a pack of wolves, they instinctively move into a small, tight circle with their calves in the middle and the adults all facing outward. This behavior would be an example of a(n) \_\_\_\_\_.
- (F) adaptation
  - (G) mutation
  - (H) synapse
  - (J) biosphere
31. Which of the following is true about the theory of evolution?
- (A) If an animal learns how to respond to commands its offspring will most likely be born with the same ability.
  - (B) If an animal runs too slowly to catch enough prey, its offspring will most likely be born with the ability to run faster.
  - (C) An animal with characteristics better suited to its environment will survive and reproduce better than other animals without that characteristic.
  - (D) A trait can become common in a population regardless of whether or not that trait increases an animal's chance of survival.
32. Which process best explains how sedimentary rocks form?
- (F) Volcanoes erupt.
  - (G) Sediments are pressed together.
  - (H) Sediments freeze.
  - (J) Minerals are pulled apart.
33. Which cycle in nature is the most common way for pollution to move through the environment?
- (A) the sunspot cycle
  - (B) the water cycle
  - (C) the lunar cycle
  - (D) the rock cycle
34. The location of a jet stream can often be detected by the presence of which long, thin clouds?
- (F) cumulus
  - (G) stratus
  - (H) cirrus
  - (J) altostratus
35. From inward to outward, which is the correct order of the following parts of the Earth?
- (A) lower mantle, lithosphere, asthenosphere
  - (B) lower mantle, asthenosphere, lithosphere
  - (C) asthenosphere, lower mantle, lithosphere
  - (D) lithosphere, lower mantle, asthenosphere



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**36. What allows Earth to hold on to the sun's heat?**

- (F) Earth's interior
- (G) Earth's atmosphere
- (H) Earth's rock cycle
- (J) Earth's land surfaces

**37. On Earth, water and air in the Northern Hemisphere appear to move to the right, but in the Southern Hemisphere, water and air move to the left. This phenomenon can be explained by \_\_\_\_\_.**

- (A) evolution theory
- (B) plate tectonics
- (C) the Coriolis effect
- (D) the Barnett effect

**38. Genetics is the study of \_\_\_\_\_.**

- (F) fossil age
- (G) bone density
- (H) heredity
- (J) evolution

**39. Which division of geologic time do scientists believe is the oldest?**

- (A) Mesozoic
- (B) Precambrian
- (C) Paleozoic
- (D) Cenozoic

**40. Which event is an example of a scientific prediction?**

- (F) Professor Waddel dropped her cup of tea.
- (G) Professor Waddel saw clouds outside and grabbed her umbrella.
- (H) Professor Waddel slipped on the wet pavement.
- (J) Professor Waddel called out to one of her students.

**41. The progression from the thinking that the world was flat to the knowledge that the world is round is an example of \_\_\_\_\_.**

- (A) the theory of natural selection
- (B) the evolution of a theory
- (C) a scientific prediction
- (D) a scientific hypothesis

**42. The force that holds Earth and other planetary objects in the sun's orbit is referred to as \_\_\_\_\_.**

- (F) electrical current
- (G) magnetic force
- (H) gravitational pull
- (J) centrifugal force

