

Name: \_\_\_\_\_

Date: \_\_\_\_\_

---

1. Marta has a radio in her room. It requires electricity in order to play. Which of the following is necessary in order for electricity to move from the source to the radio?

- A. a circuit
- B. a magnet
- C. a light bulb
- D. an insulator

*This online assessment item contains material that has been released to the public by the Massachusetts Department of Education.*

---

2. If enough heat is taken away from a container of water, what will happen to the water?

- A. It will begin to boil.
- B. It will become a solid.
- C. It will turn into a gas.
- D. It will increase in weight.

*This online assessment item contains material that has been released to the public by the Massachusetts Department of Education.*

---

3. When electricity moves through a metal wire, the wire is

- A. a conductor.
- B. an insulator.
- C. a generator.
- D. a multiplier.

4. Which is an example of a chemical change?

- A. paper being burned
- B. metal being melted
- C. a board being cut in half
- D. water being boiled

5. Over time, rocks can be changed by many natural forces. One natural force that would be an example of a chemical change would be

- A. sand blown against the rock.
  - B. acid rain reacting with the rock.
  - C. water rushing over the rock.
  - D. freezing water in a crack breaking the rock.
-

6. What happens when a piece of wood burns?

- A. A physical change takes place.
  - B. A chemical change takes place.
  - C. The wood loses its gravity.
  - D. The wood loses its inertia.
- 

7. Joe and Jill made a volcano using baking soda and vinegar. When they put them together the volcano foamed and bubbled. This is an example of

- A. a weight change.
  - B. a chemical change.
  - C. a physical change.
  - D. a density change.
- 

8. Kim puts an ice cube in a beaker and it melts. This is a good example of

- A. a physical change.
  - B. a chemical change.
  - C. an experiment.
  - D. an analysis.
- 

9. Which material conducts electricity?

- A. piece of glass
  - B. cotton T-shirt
  - C. rubber ball
  - D. copper coin
- 

10.

*Use the table below to answer this question.*

Mineral	Vinegar Drops Produce Bubbles
limestone	yes
sandstone	probably not
granite	no
gneiss	no

Vinegar is an acid that bubbles when it interacts with calcite. Which mineral contains calcite?

- A. limestone
  - B. sandstone
  - C. granite
  - D. gneiss
- 

11. The mass of a solid object stays the same until

- A. it is put into orbit in space.
  - B. it changes volume by expanding or contracting.
  - C. matter is added to or taken away from the object.
  - D. the object is taken to another planet where the force of gravity is different.
-

12. When water in an open pan is heated for a long time, it becomes

- A. a solid.
  - B. a vacuum.
  - C. a gas.
  - D. dew.
- 

13. An example of a liquid turning into a gas is

- A. a chocolate bar melting.
  - B. an ice cream cone dripping.
  - C. a stick of butter getting warm.
  - D. steam escaping from a cup of hot chocolate.
- 

14. What happens when water boils?

- A. The solid water becomes a liquid.
  - B. The liquid water becomes a solid.
  - C. The liquid water becomes a gas.
  - D. Water vapor becomes liquid water.
- 

15. An example of a solid turning into a liquid is

- A. water vapor turning into water.
  - B. water turning into water vapor.
  - C. water freezing into ice.
  - D. ice melting into water.
- 

16. What is the purpose of the plastic coating usually found on electric wires?

- A. to strengthen the wires
  - B. to prevent electric shocks
  - C. to make better connections
  - D. to keep the wires from getting hot
- 

17. If you dissolved a lot of salt in some water in a large flat dish and put the dish in bright sunlight on a hot day, what would be left in the dish after a long time?

- A. dry salt
  - B. water with no salt
  - C. the same salty water as before
  - D. nothing
- 

18. Which of the following is an example of MELTING?

- A. stirring some sugar in water until you cannot see the sugar
  - B. heating a pan of water until the water is all gone
  - C. heating a block of ice until the ice turns to water
  - D. cooling water in the freezer until the water becomes solid
-

19. To have an electric current when using batteries, there MUST be a

- A. complete circuit.
  - B. switch.
  - C. lightbulb.
  - D. motor.
- 

20. William put a sugar cube in a cup of hot water. After a period of time, what happened to the sugar cube?

- A. It dissolved.
  - B. It stayed on the bottom of the cup.
  - C. It evaporated.
  - D. It changed color.
- 

21. Plastic, wood, and iron are ALL made of

- A. energy.
  - B. plant or animal cells.
  - C. carbon molecules.
  - D. atoms.
- 

22. An example of a liquid turning into a gas is

- A. a chocolate candy bar melting.
  - B. ice cream dripping.
  - C. steam turning into ice.
  - D. water boiling.
- 

23. Which object would be most likely to rust?

- A. an iron nail
  - B. a plastic comb
  - C. a glass marble
  - D. a paper cup
- 

24. Which is an example of a chemical change?

- A. paper tearing
  - B. paper being colored
  - C. paper burning
  - D. paper getting wet
- 

25. Which term refers to the flow of electrical charges?

- A. conductance
  - B. resistance
  - C. current
  - D. energy
-

26. You should NEVER turn on a radio if you are

- A. in the dark.
  - B. outside.
  - C. in the bathtub.
  - D. alone.
- 

27. Iron is most likely to rust when it is

- A. damp.
  - B. dry.
  - C. painted.
  - D. covered with grease.
- 

28.

*Use the list below to answer this question.*

- plastic
- rubber
- glass
- paper

Which name applies to these materials because of their electrical properties?

- A. connectors
  - B. regulators
  - C. conductors
  - D. insulators
- 

29. Which would be a good conductor of electricity?

- A. a rubber band
  - B. a piece of paper
  - C. a penny
  - D. a mirror
- 

30. When several lightbulbs are connected in a series circuit, what will happen if one bulb burns out?

- A. All of the lightbulbs will go out.
  - B. The other bulbs will continue to burn.
  - C. The other bulbs will burn brighter.
  - D. There will be a short circuit.
- 

31. Wanda's dad wired new lights for her playroom. When he thought everything was connected correctly, he turned on the switch and nothing happened. What could be the problem?

- A. He put too many lights and switches in the circuit.
  - B. He needed to connect more batteries to the circuit
  - C. He made a mistake that caused an open circuit.
  - D. He should have wired the circuit in parallel.
-

32. When materials combine to form new compounds it is a chemical change. Which example is a chemical change?

- A. baking powder fizzing
  - B. water boiling
  - C. ice melting
  - D. sugar cube dissolving
- 

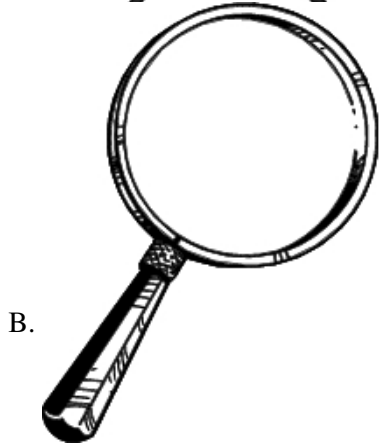
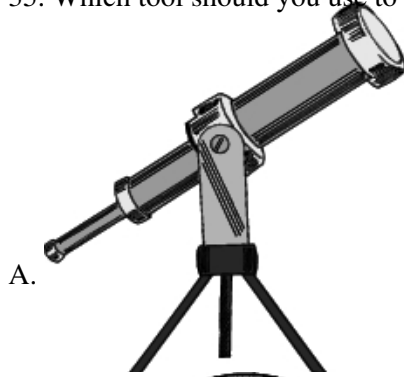
33. Which substance is made by people?

- A. wood
  - B. oxygen
  - C. copper
  - D. plastic
- 

34. Mark is observing a burning candle. He notices that the candle wax makes a pool and dribbles down the side of the candle, where it hardens again. The candle wax has undergone

- A. a physical change.
  - B. a chemical change.
  - C. a physical and a chemical change.
  - D. the formation of a new substance.
-

35. Which tool should you use to look at plant cells?



---

36. Which of these is a conductor?

- A. a short length of string
  - B. a plastic drinking straw
  - C. a piece of aluminum foil
  - D. a piece of chalkboard chalk
-

37. Toni's class grows sugar crystals. Her teacher asks each student to sketch the shape of the sugar crystals. What will help Toni see the shape of the crystals?

- A. a satellite
  - B. a telescope
  - C. a magnifying glass
  - D. a pair of binoculars
- 

38.

Static electricity can be built up by

- A. clothes spinning around in a dryer.
  - B. a battery and a light bulb.
  - C. plugging in an iron.
  - D. a glass of water.
- 

39.

Marie feels a shock from touching the TV screen just after it is turned off. This is due to the build up of

- A. static electricity.
  - B. sound energy.
  - C. light energy.
  - D. heat.
- 

40.

If you took a woolen cloth and rubbed it briskly over your hair, your hair would stand on ends. What has been created?

- A. insulator
  - B. lightning
  - C. chemical change
  - D. static electricity
- 

41.

Why does plugging in and turning on a hair dryer make it operate?

- A. electrons have a complete circuit to travel.
  - B. light energy can be converted into heat and wind.
  - C. heat energy can be transferred from a power station.
  - D. the flow of electricity is now stopped and can be contained.
- 

42.

Which components could complete an electric circuit?

- A. wire, bulb, switch
  - B. battery, bulb, switch
  - C. battery, wire, switch
  - D. battery, wire, bulb
-

43.

Two students design a circuit that includes a switch, a battery and light bulb all directly connected by wires. Before flipping the switch, what could the students do to BEST ensure that it will work?

- A. clean the wires
  - B. check the brightness of the bulb
  - C. reverse the direction of the wires
  - D. make sure there is a complete path
- 

44.

Gary walks in the house and turns on the light. What could he do that would make this circuit open?

- A. remove the light bulb
  - B. leave the light operational
  - C. replace the bulb with a dimmer bulb
  - D. extend the wire from the switch to the light
- 

45.

A closed circuit is a(n)

- A. switch.
  - B. battery.
  - C. blocked path.
  - D. free flowing path.
- 

46.

Larry connects a wire from a battery to each of the listed items. Which item would allow a current from the battery to pass through if connected to another wire on an opposite end?

- A. brass door knob
  - B. wooden door
  - C. rubber ball
  - D. cotton shirt
- 

47.

What is one way in which bar magnets and electromagnets are alike?

- A. They both can attract iron, nickel and cobalt.
  - B. They both need a current to operate.
  - C. They are both permanent magnets.
  - D. They are both temporary magnets.
- 

48.

Which answer makes a correct statement?

- A. Physical change only changes the size.
- B. Physical change only changes the color.
- C. Physical changes begin and end with the same matter.
- D. Physical changes change the matter into something totally different.

49.

When two substances such as water and baking soda are combined what occurs when the water evaporates?

- A. No reaction will occur if they are mixed.
  - B. The water and soda remain mixed together.
  - C. A chemical change occurs because you have created a new substance.
  - D. A physical change occurs when the water evaporates and leaves the baking soda.
- 

50.

What type of change will occur when an ice cube melts and becomes a liquid?

- A. property change
  - B. chemical change
  - C. physical change
  - D. chemical reaction
- 

51.

As water vapor condensates it forms clouds. What might happen next?

- A. it rains
  - B. it freezes
  - C. it is evaporated
  - D. it dries up
- 

52.

What type of change occurs when new compounds form?

- A. chemical
  - B. physical
  - C. liquids will change
  - D. no changes will occur
- 

53.

In a chemical change what would happen if you mixed two substances?

- A. They would form a new compound.
  - B. The two would not be able to mix.
  - C. They would be two separate substances.
  - D. The compounds would keep their original identity.
- 

54.

Which answer demonstrates that a chemical change has occurred?

- A. There will be no noticeable change.
  - B. The matter will stay the same.
  - C. There is a change in size.
  - D. There was a color change.
-

55.

Rust on a bicycle is an example of what kind of change?

- A. chemical change
  - B. physical reaction
  - C. physical change
  - D. change in shape
- 

56.

Predict the results of this experiment.

Weigh a classmate. Record. Have them remove their shoes and socks. Weigh items and record. They should remove any other items that they can (outer shirt, watch, jewelry, jacket). Weigh items and record. Weigh the classmate again and add all the item weights together.

Compare the results of the first weigh in to the last. What conclusion do you reach?

- A. The last weight is less.
  - B. The numbers add up to more than the original weigh in.
  - C. The individual parts weigh less on the classmate than they do by themselves.
  - D. The weight is the same at the end as the beginning when all parts are added together.
- 

57.

To study diseases that might be contained in a patient's blood, which tool might a doctor use?

- A. telescope
  - B. microscope
  - C. electromagnet
  - D. intense light source
- 

58.

If a repairman is working on a small watch, why might he need to use a magnifying glass?

- A. to see the tiny parts of the watch
  - B. to increase the light on the watch
  - C. to make the watch smaller
  - D. to correct his vision
-

**59. Some children are making mud balls. They cut the mud balls in half. Which of these changed when the mud balls were cut in half?**

- A. The softness of the mud ball
- B. The size of the mud ball
- C. The color of the mud ball
- D. The stickiness of the mud ball

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

---

**60. Which of the following changes is possible with the addition of heat?**

- A. Liquid water changes to ice.
- B. Water vapor changes to ice.
- C. Water vapor changes to liquid water.
- D. Ice changes to liquid water.

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

---

**61. What material would be safest to use as an insulator to cover electrical wires?**

- A. Aluminum
- B. Tin
- C. Rubber
- D. Water

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

---

62.



**Objects with like charges repel and unlike charges attract. The girl's hair and the comb have —**

- A. unlike charges
- B. like charges
- C. neutral charges
- D. no charges

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

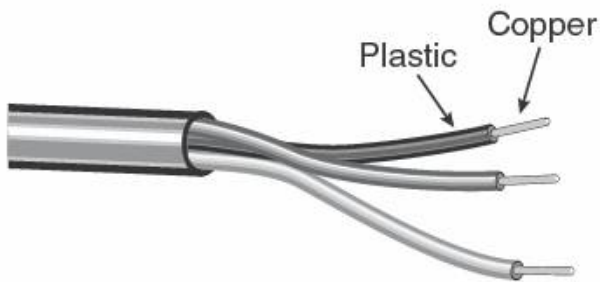
---

**63. Tearing paper is an example of a —**

- A. physical change.
- B. chemical change.
- C. chemical reaction.
- D. solution.

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

---



64.

**Many electrical wires are wrapped with a plastic coating because plastic is —**

- A. less expensive than steel.
- B. more dense than copper.
- C. able to keep its shape.
- D. a good insulator.

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

---

**65. If you break a piece of glass, the shape of the glass changes, but the properties in the fragments remain the same. Which of the following has occurred?**

- A. A chemical change
- B. A temperature change
- C. A phase change
- D. A physical change

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

---

**66. A comb is rubbed with a piece of wool fabric and placed next to some scraps of paper. The paper moves toward the comb. The movement of the paper is caused by —**

- A. chemical energy
- B. magnetic attraction
- C. mechanical energy
- D. static electricity

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

---

67. Which process is a physical change?

- A. Rusting iron
- B. Burning coal
- C. Tarnishing silver
- D. Melting ice

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

---

68. Water, ice, and steam are alike because they —

- A. are the same compound.
- B. have the same shape.
- C. look the same.
- D. feel the same.

*Permission has been granted for reproduction by the Virginia Department of Education  
© Virginia Department of Education*

**Answer Key**

1. A) a circuit
2. B) It will become a solid.
3. A) a conductor.
4. A) paper being burned
5. B) acid rain reacting with the rock.
6. B) A chemical change takes place.
7. B) a chemical change.
8. A) a physical change.
9. D) copper coin
10. A) limestone
11. C) matter is added to or taken away from the object.
12. C) a gas.
13. D) steam escaping from a cup of hot chocolate.
14. C) The liquid water becomes a gas.
15. D) ice melting into water.
16. B) to prevent electric shocks
17. A) dry salt
18. C) heating a block of ice until the ice turns to water
19. A) complete circuit.
20. A) It dissolved.
21. D) atoms.
22. D) water boiling.
23. A) an iron nail
24. C) paper burning
25. C) current

26. C) in the bathtub.

27. A) damp.

28. D) insulators

29. C) a penny

30. A) All of the lightbulbs will go out.

31. C) He made a mistake that caused an open circuit.

32. A) baking powder fizzing

33. D) plastic

34. A) a physical change.



35. C)

36. C) a piece of aluminum foil

37. C) a magnifying glass

38. A) clothes spinning around in a dryer.

39. A) static electricity.

40. D) static electricity

41. A) electrons have a complete circuit to travel.

42. D) battery, wire, bulb

43. D) make sure there is a complete path

44. A) remove the light bulb

45. D) free flowing path.

46. A) brass door knob

47. A) They both can attract iron, nickel and cobalt.

48. C) Physical changes begin and end with the same matter.

49. D) A physical change occurs when the water evaporates and leaves the baking soda.

- 50. C) physical change
- 51. A) it rains
- 52. A) chemical
- 53. A) They would form a new compound.
- 54. D) There was a color change.
- 55. A) chemical change
- 56. D) The weight is the same at the end as the beginning when all parts are added together.
- 57. B) microscope
- 58. A) to see the tiny parts of the watch
- 59. B) The size of the mud ball
- 60. D) Ice changes to liquid water.
- 61. C) Rubber
- 62. A) unlike charges
- 63. A) physical change.
- 64. D) a good insulator.
- 65. D) A physical change
- 66. D) static electricity
- 67. D) Melting ice
- 68. A) are the same compound.