4th Gr. Electric Circuits & Magnetism

Read and answer each question carefully.

1) In which picture will the bulb light?

A) 

B) 

C) 

D)
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2) The flow of electricity through a circuit is called

A) insulator
B) conductor
C) current
D) light bulb

3) Electricity flows on a path. What is the path called?

A) switch
B) circuit
C) magnet
D) battery
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Use the following diagram to answer questions 4 and 5.

4) Why do you think the light bulb in this diagram will not light?
   A) It is an incomplete circuit.
   B) The bulb is broken.
   C) It is a complete circuit.
   D) The wire is insulated.

5) What do you need to do to make the bulb in this circuit light?
   A) change the battery
   B) add a diode
   C) change the light bulb
   D) close the switch
6) Which item will conduct electricity?
   A) wood golf tee
   B) chalk
   C) paper clip
   D) marble

7) What is the purpose of the plastic covering on a wire?
   A) It acts as an insulator.
   B) It is a power source.
   C) It acts as a conductor.
   D) It completes a circuit.

8) Diodes are used to
   A) make a battery last longer.
   B) make a light brighter.
   C) open and close a circuit.
   D) control the direction electricity flows.

9) Which of the following is a benefit of putting your batteries in a series?
   A) dimmer light
   B) longer battery life
   C) brighter light
   D) shorter battery life
10) Which of the following is a benefit of having your batteries in a parallel circuit?

A) dimmer light  
B) brighter light  
C) longer battery life  
D) shorter battery life

11) When you flip the switch to turn on the lights in your class, why do the lights go on?

A) The diode is turned on.  
B) The circuit is completed.  
C) The bulb is broken.  
D) The circuit is incomplete.

12) Which of these items is both a **source** and a **load**?

A) battery  
B) insulator  
C) wire  
D) bulb

13) Maria constructed a flashlight. She covered the entire flashlight with aluminum foil. She had a problem. Even when she turned off the switch, **the light bulb would not go out**! Why does the light stay on?

A) The aluminum foil is acting as an insulator and creating a short circuit.  
B) The connections between the battery and the light bulb are open.  
C) The battery has been used by too many classes and is dead.  
D) The aluminum foil is completing the circuit to the bulb.
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14) What happens when you put the North (N) poles of two magnets together?
   
   A) They bend in half.  
   B) They stick together. 
   C) They push apart.  
   D) They become hot.

15) What happens if you wrap wire around an iron rod and connect the ends of the wire to a battery?
   
   A) The battery blows up. 
   B) The iron rod lights up.  
   C) The iron rod becomes a magnet. 
   D) The battery becomes hot.

16) If you are building a tower of magnets, which ends of the magnets should you put together to make the tower stand?
   
   A) North to North 
   B) It does not matter 
   C) South to South  
   D) North to South

17) Jon needed to complete a circuit. Which of these materials should he use?
   
   A) wire screen 
   B) plastic screen  
   C) wooden tooth pick 
   D) plastic spoon
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18) All magnets have how many poles?
   A) one  B) two  C) three  D) four

19) A light bulb is an example of
   A) a battery.  B) a pathway.  C) a load.  D) a circuit.

20) Another word for electric power is
   A) voltage.  B) diode.  C) insulator.  D) switch.
21) Look at the graph of electricity use over 12 months by one Arizona household. What most likely caused the increase in electricity use in **July**?

![Graph of Actual Monthly Usage kWh](image)

- A) filling the swimming pool
- B) watering the plants in the house
- C) heating the house
- D) cooling the house

22) What happens when you add more batteries to a series circuit?

- A) longer battery life
- B) dimmer light
- C) brighter light
- D) no change in brightness
23) Lua tries to stick her two magnets together, but they push apart. What should she do?

A) wrap wire around them  
B) turn one magnet around  
C) move the magnets farther apart  
D) keep pushing the magnets together

24) Which list of items uses electromagnets?

A) jump rope, soccer ball, and basketball  
B) pencil, desk, and chair  
C) cup, bicycle, and skateboard  
D) computer, stereo, and electric motor

25) Electricity can be used to produce all of the below, except…

A) heat  
B) wood  
C) light  
D) magnetism