Guided Practice WK 10

power up STAAR to science

Readiness Standard 5.6.B

Name _____ Date _____

1. Students are experimenting to find out if different types of batteries will affect the brightness of a light bulb. The materials for the investigation are shown below. (5.2.A)

What is the variable in the investigation? what is being changed?

A. the light bulb 1
B. the wires all the same
C. the different types of batteries
D. the metal on the light bulb not changing

2. The flow of electricity in circuits requires a complete path through which an electric current can pass. Which of the following can an electric current produce? what can electricity make?

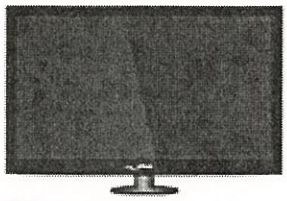
F. light ✓ light bulb
G. heat ✓ toaster
H. sound ✓ speakers
J. all of the above

3. Which of the following does NOT need an electrical circuit to operate correctly?

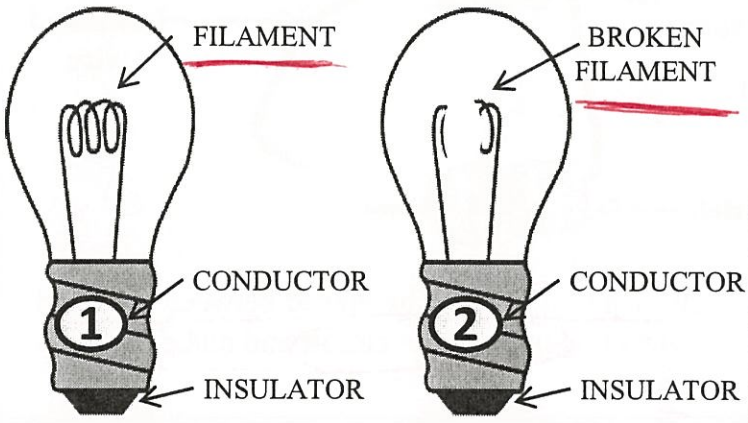
A.  Batteries

B.  plug

C.  Not electricity ✗ ✗

D.  plug

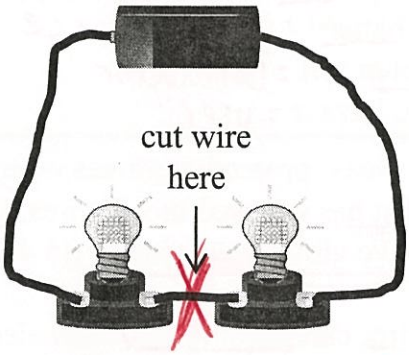
4. The parts of a light bulb work together as a system to produce light. The picture below shows a light bulb that produces light and a light bulb that does not produce light. (5.2.D)



Why does light bulb number two **NOT** produce light?

F. The filament is broken and the circuit is open. ✓ does not work
G. The filament is not a conductor of electricity. same
H. The filament is an insulator. same
J. The filament is broken and the circuit is closed. ✗ works

5. The picture below shows a complete circuit.



What would happen if the wire was cut between the two light bulbs?

A. Both bulbs would remain lit. ✗ open circuit
B. Both bulbs would not remain lit. ✓
C. Only one bulb would remain lit. open circuit
D. The battery would light up. ?

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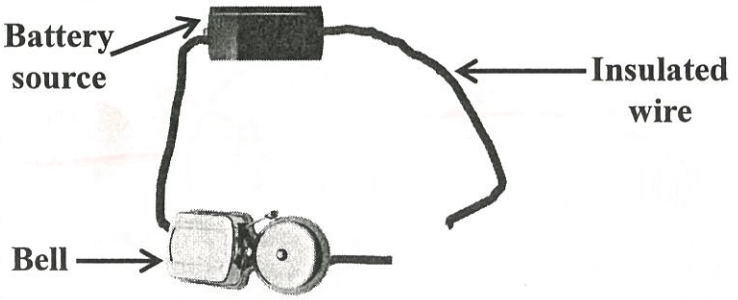
6. Students are building complete circuits to test conductors and insulators of electricity. Below is a picture of an open circuit.



Which object could be placed between the open wires to complete the circuit and make the bell ring?

F. cotton swab I
G. plastic button I
H. glass marble I
J. copper penny C

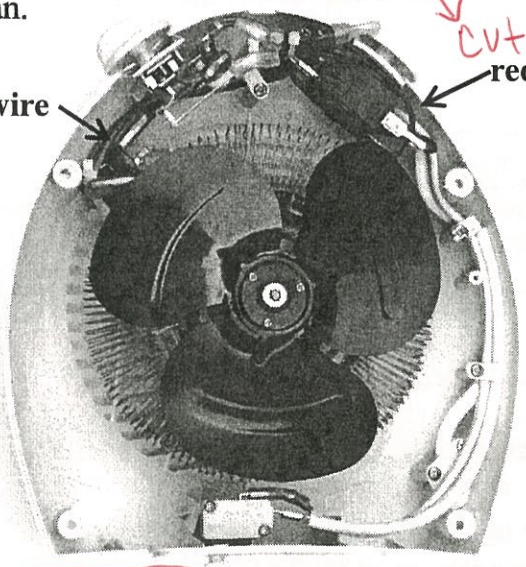
7. Students are given a small electric buzzer, a strip of aluminum foil, a D cell battery, and two insulated wires. If the students build a working circuit that makes the buzzer go off, what is the source of energy for the buzzer?

A. insulated wires = conductors
B. D cell battery = power source
C. aluminum foil = conductor
D. electric buzzer = user

8. A teacher wears protective gloves when creating a circuit that has exposed metal wires. Why are the protective gloves necessary? ((5.4.B)

F. The wires can become hot ✓ when electricity flows through.
G. The wires can become cold ✗ when electricity flows through.
H. The gloves help keep the teacher's hands warm.
J. None of the above.

9. Pictured below is a complete circuit in a working fan.

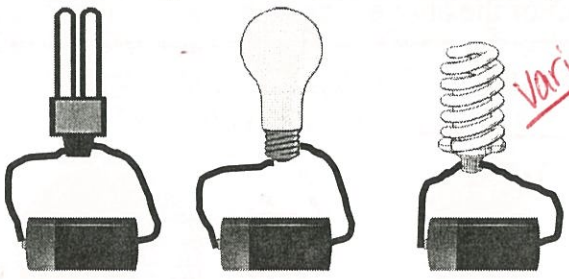


Cut = Incomplete circuit

What would happen to the fan if the red wire were cut? (5.2.D)

A. The fan would spin faster. ✗
B. The fan would spin slower. ✗
C. The fan would stop working. Incomplete circuit
D. The fan would produce light. ✗ mechanical energy

10. A student uses three different types of bulbs and builds a complete circuit for each one. (5.2.B)



variable

Which question is this investigation most likely designed to answer?

F. How do different bulbs (variable) react to a simple circuit?
G. How do different batteries ✗ affect the brightness of a bulb?
H. How do insulated wires affect a circuit? wires not mentioned
J. How do batteries work in a circuit?

No variable