**Section 1 Questions**



1. What is this?
   1. Pliers
   2. Scissors
   3. Wire Stripper
   4. Screwdriver
   5. Crimper
   6. Multimeter



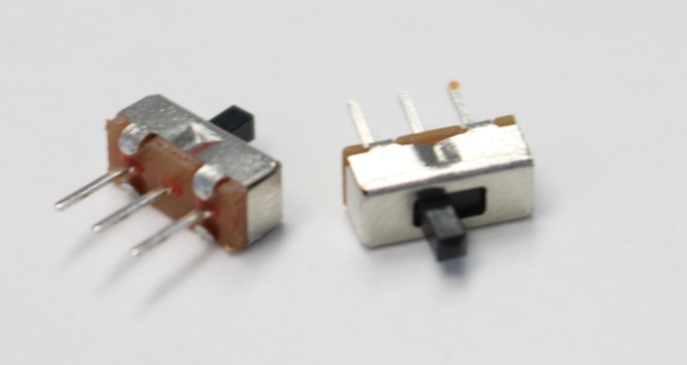
1. What is this?
   1. Pliers
   2. Scissors
   3. Wire Stripper
   4. Screwdriver
   5. Crimper
   6. Multimeter

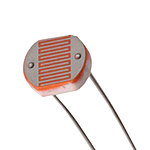


1. What is this?
   1. Pliers
   2. Scissors
   3. Wire Stripper
   4. Screwdriver
   5. Crimper
   6. Multimeter

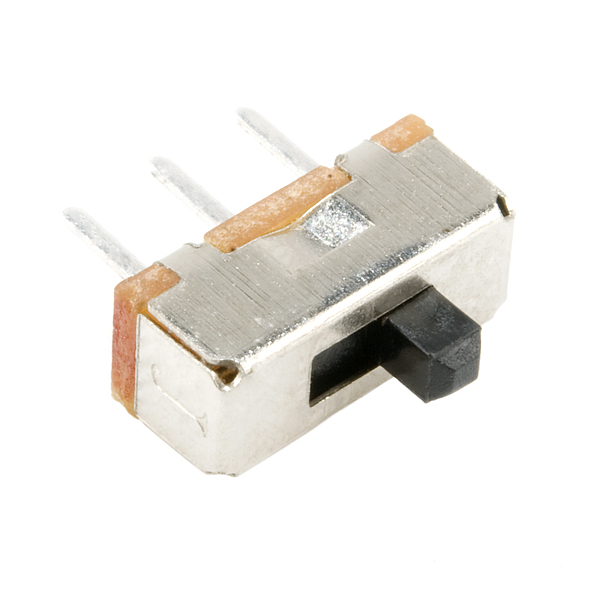


1. What is this?
   1. Pliers
   2. Scissors
   3. Wire Stripper
   4. Screwdriver
   5. Crimper
   6. Multimeter
2. What are the colors of a 220Ω resistor?
   1. Red, Red, Brown
   2. Blue, Red, Red
   3. Yellow, Violet, Brown
   4. Brown, Black, Red
   5. Orange, Red, Brown
   6. Brown, Black, Orange
3. What are the colors of a 470Ω resistor?
   1. Red, Red, Brown
   2. Blue, Red, Red
   3. Yellow, Violet, Brown
   4. Brown, Black, Red
   5. Orange, Red, Brown
   6. Brown, Black, Orange
4. What are the colors of a 1000Ω resistor?
   1. Red, Red, Brown
   2. Blue, Red, Red
   3. Yellow, Violet, Brown
   4. Brown, Black, Red
   5. Orange, Red, Brown
   6. Brown, Black, Orange
5. What are the colors of a 10000Ω resistor?
   1. Red, Red, Brown
   2. Blue, Red, Red
   3. Yellow, Violet, Brown
   4. Brown, Black, Red
   5. Orange, Red, Brown
   6. Brown, Black, Orange
6. An RGB LED has 3 prongs.
   1. True
   2. False
7. An RGB LED has 2 prongs.
   1. True
   2. False
8. An RGB LED has 4 prongs.
   1. True
   2. False
9. Which component(s) was/were not included in your kit? (Circle all that apply)
   1. Potentiometer
   2. Transistor
   3. 1 μF Capacitor
   4. Relay
   5. 550 Ω Resistor
   6. RGB LED
10. The kit came with green, red, and yellow LEDs.
    1. True
    2. False
11. The kit came with green, red, yellow, and white LEDs.
    1. True
    2. False
12. Are columns on the breadboard numbered or lettered? (Circle one)
13. Are rows on the breadboard numbered or lettered? (Circle one)
14. How many columns are on the breadboard?
    1. 20
    2. 40
    3. 36
    4. 30
    5. 45
    6. 25
15. How many rows are on the breadboard?
    1. 5
    2. 6
    3. 7
    4. 8
    5. 9
    6. 10
16. What is the estimated price of the whole kit?
    1. $50
    2. $75
    3. $80
    4. $100
    5. $110
    6. $150
17. Which component(s) was/were included in your kit? (Circle all that apply)
    1. Heater
    2. Motor
    3. Multimeter
    4. Precision cutter
    5. Power Source
    6. All of the above
18. How many resistors came in your kit?
    1. 20
    2. 35
    3. 10
    4. 15
    5. 25
    6. 30
19. How many capacitors came in your kit?
    1. 2
    2. 4
    3. 3
    4. 5
    5. 1
    6. 6
20. Match the names of the components with their respective pictures
    1. Potentiometer
    2. Slide switch
    3. Push-button switch
    4. Inductor
    5. Photoresistor
    6. Transistor
    7. Thermistor
    8. Relay
    9. Diode
    10. Capacitor
    11. Resistor
    12. LED
    13. RGB LED

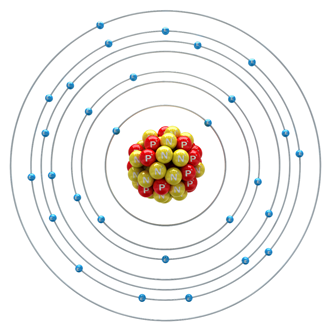








1. What is electricity?
   1. The flow of electric charge
   2. The potential difference between the strength of the electron supply and the electron shortage
   3. A measure of a material’s opposition to the passage of electric current.
   4. The supply of mechanical or electrical energy
   5. The measure of work
   6. The total amount of resistance
2. Electricity moves best through which material?
   1. Silicon
   2. Plastic
   3. Glass
   4. Rubber
   5. Aluminum
   6. Cotton
3. Electricity is prohibited from flowing easily in which kind of material?
   1. Conductors
   2. Inductors
   3. Semiconductors
   4. Transistors
   5. Insulators
   6. Diodes
4. Electricity can easily flow in which kind of material?
   1. Conductors
   2. Inductors
   3. Semiconductors
   4. Transistors
   5. Insulators
   6. Diodes
5. Electricity can flow easily under certain conditions in which kind of material?
   1. Conductors
   2. Inductors
   3. Semiconductors
   4. Transistors
   5. Insulators
   6. Diodes
6. How many valence electrons does copper have?



* 1. 1
  2. 2
  3. 3
  4. 4
  5. 6
  6. 11

1. What is always true about conductive materials?
   1. They have a lot of valence electrons
   2. They have few valence electrons
   3. They are shiny
   4. They are dull
   5. They produce light
   6. They produce heat
2. How do electrons move?
   1. From the positive terminal to the negative terminal of the battery
   2. From voltage shortage to supply
   3. From the right to the left
   4. From the left to the right
   5. From the negative terminal to the positive terminal of the battery
   6. From east to west
3. Electrons travel from the\_\_\_\_\_\_\_\_\_\_\_to the\_\_\_\_\_\_\_\_\_\_\_\_.
   1. Shortage, supply
   2. High, low
   3. Low, high
   4. Digital, analog
   5. Supply, shortage
   6. Analog, digital
4. Conventional current travels from\_\_\_\_\_\_\_\_to\_\_\_\_\_\_\_\_.
   1. High, low
   2. Low, high
   3. Negative, positive
   4. Positive, negative
   5. Electron, proton
   6. None of the above
5. Electrical resistance is best described as:
   1. The potential difference between the strength of the electron supply and the electron shortage
   2. The sum of the electron supply and shortage
   3. The net flow of electrons
   4. The measure of a material’s opposition of electric current
   5. The measure of a material’s strength of electric current
   6. None of the above
6. Voltage is best described as:
   1. The potential difference between the strength of the electron supply and the electron shortage
   2. The sum of the electron supply and shortage
   3. The net flow of electrons
   4. The measure of a material’s opposition of electric current
   5. The measure of a material’ s assistance of electric current
   6. None of the above
7. \_\_\_\_\_\_\_\_\_\_\_\_is the measure of how badly electrons want to cover a distance.
   1. Current
   2. Voltage
   3. Torque
   4. Resistance
   5. Work
   6. Capacitance
8. Why do some materials conduct better than others?
   1. They are stronger
   2. They are shiny
   3. They are heavier
   4. They do not have any free electrons
   5. They do not have any electrons
   6. None of the above
9. Which of the following is an insulator?
   1. Copper
   2. Plastic
   3. Gold
   4. Aluminum
   5. Silver
   6. Salty water
10. The conductivity of a material is based on the material’s\_\_\_\_\_\_\_\_\_\_\_\_\_.
    1. Weight
    2. Density
    3. Number of protons
    4. Number of valence electrons
    5. Number of electric dipoles
    6. Atomic number
11. Electrons can be best described as:
    1. Positively charged particles
    2. Neutral particles
    3. Negative charged particles
    4. Electric charged particles
    5. Small particles
    6. Large particles
12. Which of the following is a semiconductor?
    1. Diamond
    2. Glass
    3. Copper
    4. Rubber
    5. Transistor
    6. Aluminum
13. A material with eight valence electrons would work best as a(n):
    1. Conductor
    2. Resistor
    3. Power source
    4. Semiconductor
    5. Insulator
    6. LED
14. The path taken by an electron can be best described as:
    1. Straight
    2. Curved
    3. Scattered
    4. Diagonal
    5. horizontal
    6. None of the above
15. The potential difference between the strength of the electron supply and the electron shortage is the:
    1. Current
    2. Voltage
    3. Temperature
    4. Torque
    5. Equivalent Resistance
    6. Breadboard
16. \_\_\_\_\_\_\_\_\_\_\_\_\_ is the potential difference between the strength of the electron supply an electron shortage.
    1. Current
    2. Voltage
    3. Temperature
    4. Torque
    5. Equivalent Resistance
    6. Breadboard
17. What does AC stand for?
    1. Air Conditioning
    2. At Current
    3. Alternating Current
    4. Alternating Condition
    5. Air Current
    6. At Condition
18. What does DC stand for?
    1. Dead Current
    2. Direct Condition
    3. Direct Current
    4. Danish Cuisine
    5. Dead Condition
    6. Depended Current
19. What is the voltage of a standard US power outlet?
    1. 90V
    2. 100V
    3. 110V
    4. 120V
    5. 130V
    6. 140V
20. AA batteries produce how many volts?
    1. .5V
    2. 1V
    3. 1.5V
    4. 2V
    5. 2.5V
    6. 3Vcolumns
21. What do you call the columns on the breadboard that are used to provide voltage for multiple circuits built on the board?
    1. Power bus
    2. Bus Stop
    3. Power Strip
    4. Bus Strip
    5. Power Line
    6. Voltage Line
22. What setting do you use to measure the voltage coming from your Arduino on your breadboard?
    1. DCmA
    2. DC10A
    3. DCV
    4. ACV
    5. ACmA
    6. Battery Load Test
23. What is the main difference between the multimeter pinchers and probes?
    1. They are different colors
    2. They plug into different ports
    3. They are different lengths
    4. You must hold probes with your hands
    5. They are made of different materials
    6. There are the same
24. You must hold the multimeter probes with your hands.
    1. True
    2. False
25. The standard voltage of an AA battery is 3V.
    1. True
    2. False
26. The voltage of a US power outlet is 120V.
    1. True
    2. False
27. The \_\_\_\_\_\_\_\_\_\_\_ connects the battery to the Arduino.
    1. Headphone Jack
    2. Barrel Jack
    3. Colby Jack
    4. Car-Jack
    5. Alternate Jack
    6. USB Cable
28. You use the ACV setting on your multimeter to measure the voltage coming from your Arduino to your breadboard.
    1. True
    2. False
29. Outside of the bus strip, the rows are connected but not the columns.
    1. True
    2. False