Adventure Kit: 30 Days Lost in Space Quiz

Name: _____ **ID No:_____**

Date: _____ **Comments: _____**

Note: Quiz by InventrKits PBLLC

01. Which of the following best describes a "library" when talking about programming?

a. The best place to do coding work, because it's nice and quiet which makes it easy to focus.

b. A collection of additional resources, such as new functions to call or other bits of useful code that can be easily imported and used in your projects that (at least in general) make programming easier and more streamlined. (for example, the Arduino IDE includes the Arduino library by default, which allows us to print to serial, set pins as inputs/outputs, etc without having to reinvent the wheel every program).

02. Which of the following kit components require an external library in order to work properly?

a. 4x4 Button Keypad

b. 128x64 OLED Display

c. Breadboard

d. 7-segment Display

03. How do you add an external library on the Arduino IDE?

a. Sketch > include library > Add.zip library

b. Open the library, copy all the code into your current project, and hit run. Continue to solve any syntax errors until fixed.

c. Arduino IDE doesn't support external libraries.

04. ”LED” and “OLED” stand for….?

a. Light-emitting display and optimized light-emitting display (aka, optimized LED)
b. Light-emitting diode and organic light-emitting diode (aka, organic, LED)
c. Laser Energy Dinosaurs and Overpowered Laser Energy Dinosaurs. (Godzilla was a good example)

05. “RGB” (when talking about lights) refers to…..?

a. Red, Green, and Blue. It’s a game where you catch and fight with monsters that was originally released back in the late 90’s for handheld game devices, where the coolest kids chose the red starter.
b. Rotational Gravity Barrier
c. Red, Green, and Blue. By using these three colors, you can make any color you want depending on how much of each you put in. usually a value between 0 and 255, where 0 is none and 255 is completely on. For instance, if you want a color like purple, you could set Red to 255, Green to 0, and Blue to 255. If you want it to be more red and less blue, you can lower the blue value to something like 100(or similar).

06. “USB” (That big blue cable in the kit?) means…?

a. Unified Senor Beams
b. Universal Serial Bus
c. Underhanded Security Breaches

07. Which of the following choices aligns best with our understanding of "Digital"?

a. Off/On ,0/1, false/true, LOW/HIGH
b. Within the range 0-100

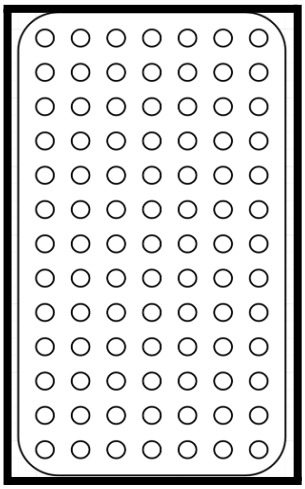
08. Which of the following choices aligns best with our understanding of "Analog"?

a. Generally, one of two states ON or OFF.
b. Generally, within a wide range of values, such as number between 0 and 100 like 50 or 76.9988002.

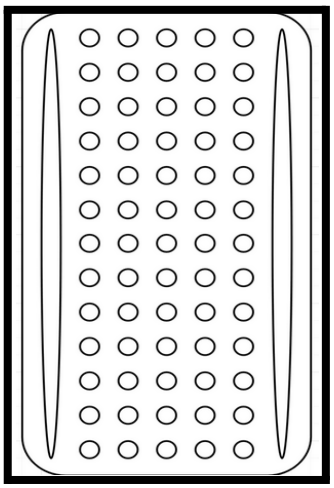
09. What components below would you want to use PMW for over the regular digital I/O pins/? (The pins on your HERO board with a "~" symbol in front of them)

a. Standard (2 pins) LED
b. RGB(custom-color) LED (4 pin)
c. Photoresistor (sensor used to read brightness levels in previous lesson)
d. Standard Button

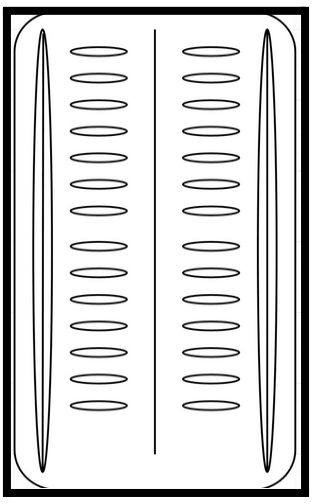
10. Which image below is a good representation of what the metal strips would look like if you could use X-ray vision through the pin holes? **(DO NOT TAKE OFF BACK OF BREADBOARD, YOU CAN AND WILL BREAK IT THIS WAY).**



(a)

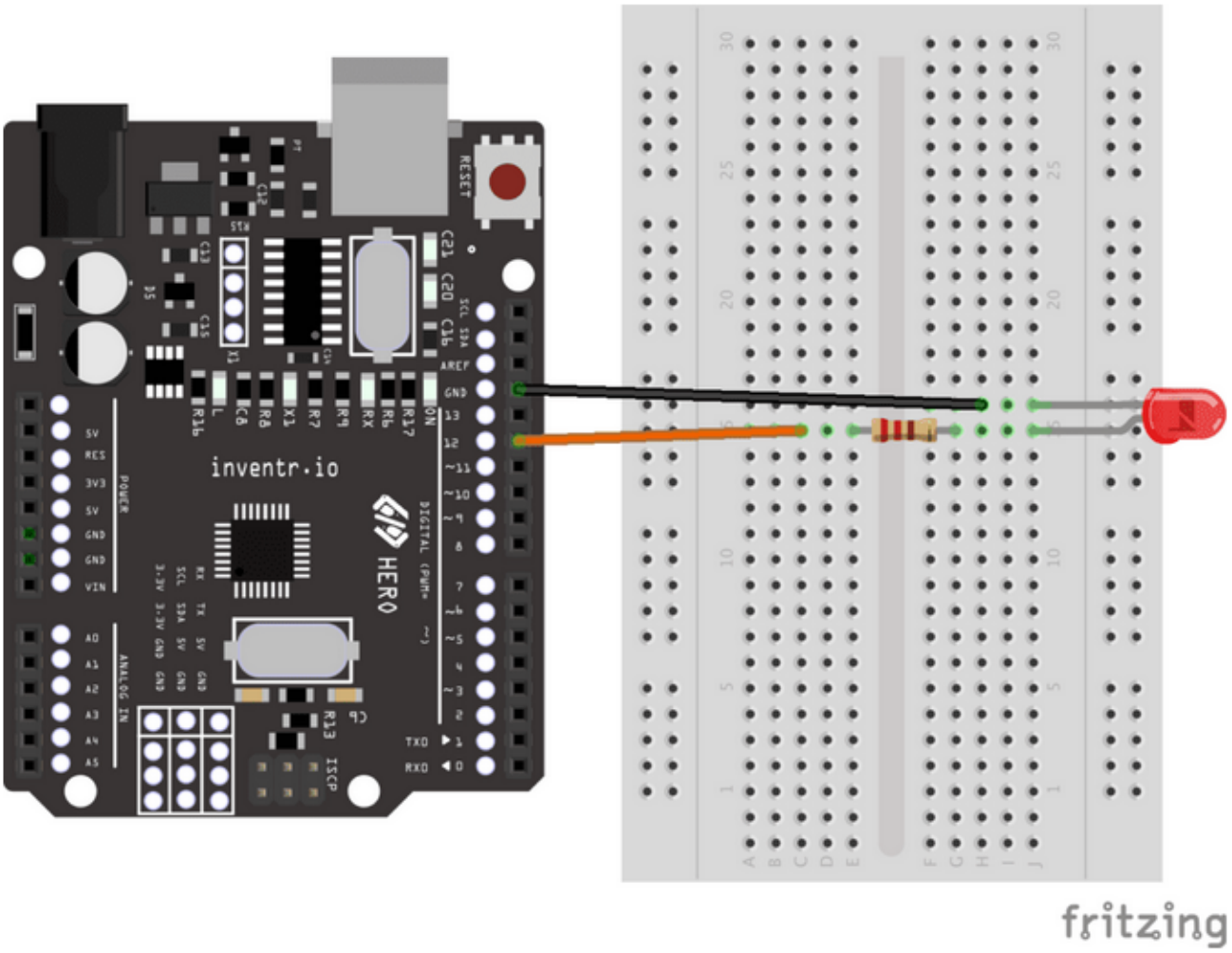


(b)



(c)

11. **Assume you want to plug an LED into pin 12 on the HERO board (see image below) and turn it on. What code choice below would allow you to do that?**



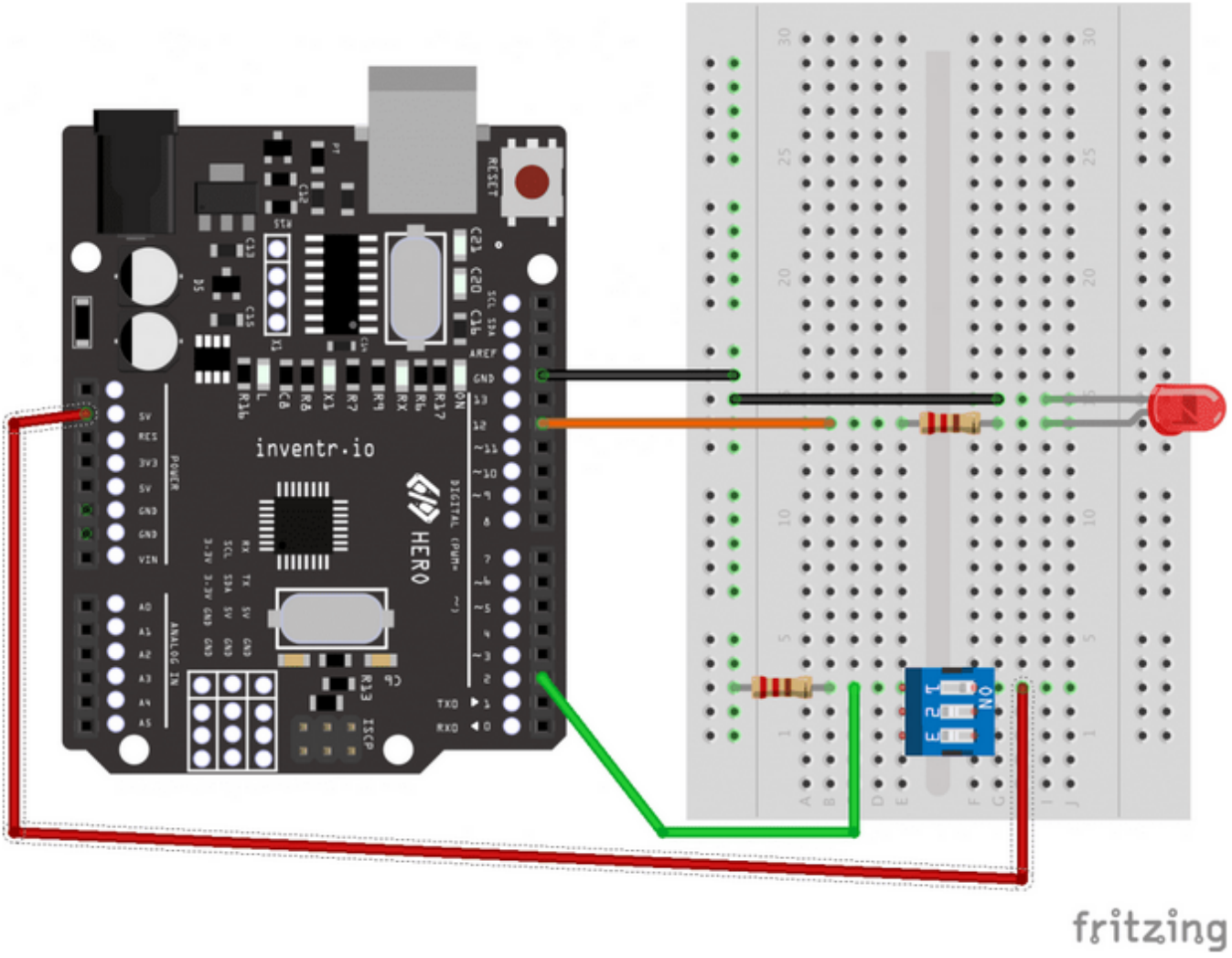
a. pinMode(12, INPUT);
   digitalWrite(12, HIGH);
b. pinMode(12, OUTPUT);
   digitalWrite(12, HIGH);
c. pinMode(12, INPUT);
   digitalWrite(12, LOW);
d. pinMode(12, OUTPUT);
   digital/write(12, LOW);

12. What syntax is correct for turning on “Light” if “Switch1” is ON?

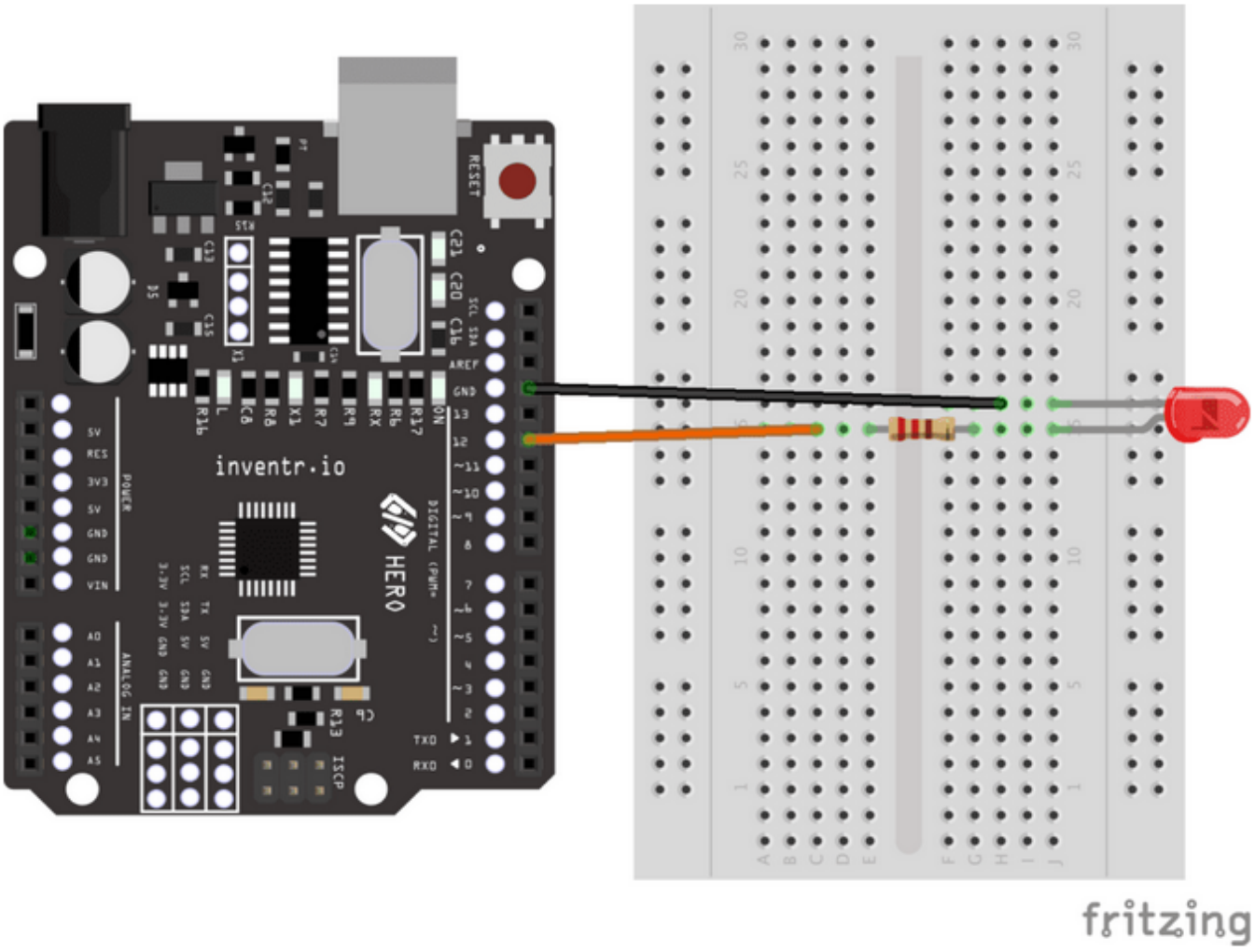
a. If(digital read(switch1==1){
digitalwrite(Light,HIGH);//5V
}

b. If (digitalwrite(switch1)==1){
digitalRead(Light,HIGH);//5V
}

13. Is this diagram correct & functional? (Circle one: Yes / No)



14. **Assume you want to plug an LED into pin 12 on the HERO Board (see image below) and turn it on. What code choice below would allow you to do that?:**



a. pinMode(12, INPUT);
   digitalWrite(12, HIGH);
b. pinMode(12, OUTPUT)
   digitalWrite(12, HIGH);
c. pinMode(12, INPUT);
   digitalWrite(12, LOW);
d. pinMode(12, OUTPUT);
   digitalWrite(12, LOW);

15. **Which of the following is an example of a “Boolean”(bool)data type?**

    a. True
    b. -33.33
    c. “The quick brown fox jumps over the lazy dog”
    d. False

16. **Which of the following is an example of a “String”(string) data type?(select all that apply)**

    a. 88
    b. “The quick brown fox jumps over the lazy dog”
    c. “10 9 8 7 6 5 4 3 2 1”
    d. A string is simply an array of characters (char) with additional helpful features in higher level programming languages for simplification and convenience.

17. **Which of the following is an example of a “Double” (double) data type?**

    a. T
    b. “The quick brown fox jumps over the lazy dog”
    c. 10
    d. -33.33

18. **Which of the following is an example of an “Integer” (int) data type?**

    a. T
    b. “The quick brown fox jumps over the lazy dog”
    c. 10
    d. -33.33

19. **Which of the following is an example of a “Character” (char) data type?**

    a. T
    b. “The quick brown fox jumps over the lazy dog”
    c. True
    d. -33.33

20. **Which of the following best describes the default Arduino IDE functions setup() and loop()?**

    a. Setup()and loop() are not necessary to run code on the HERO board, but are generally good staring points when making a new project.
    b. Setup() and loop() are both necessary to run code on the HERO board, setup() will run exactly once, and loop() will also run exactly once, but only after setup() has run.
    c. Setup() and loop() are both necessary to run code on the HERO board, setup() will run exactly once, and loop() will run infinitely after setup() has completed running.
    d. Setup() and loop() are both necessary to run code on the HERO board. Setup () will run infinitely until you tell it to stop in loop().

21. **What object below is considered an input? (Multiple Answers)**

    a. Computer Mouse
    b. Computer Monitor
    c. Light Switch
    d. Ceiling Fan
    e. Pizza

22. **Assume you have the following function above setup() in your code:**

```
void doSomething() {
    //put code here!
}
```

What would be an appropriate return statement at the end of the function doSomething()?

a. Return some integer, like -1 or 550. (return -1;)
b. Return a string, such as “The quick brown fox jumps over the lazy dog”
c. Do not return anything, because it is a void function. You can’t return void,duh!

23. **Assume you have the following function above setup() in your code:**

```
double doSomething () {
  //put code here!
}
```

What would be an appropriate return statement at the end of the function doSomething()?

a. return a string, such as “The quick brown fox jumps over the lazy dog”
b. do not return anything, it’s like void and also not needed.
c. Return a double, like -33.33 or 123.45678

24. “For” loops (see example below) are great for the following:

```
for (int i=0; i<100;i++) {
        Serial.println(i);  //prints value of i to the serial monitor
}
```

a. When you have a specific number of times you know you need to go through the loop.
b. When you need to continue looping an unknown amount of times until some condition becomes true or false.

25. “While” loops (see example below) are great for the following :

```
while(digitalRead(Button)==0) {
        // wait for some unknown amount of time until the button gets pressed (which would set the value to 1 instead of 0).
}
```

a. When you have a specific number of times you know you need to go through the loop.
b. When you need to continue looping an unknown amount of times until some condition becomes true or false.

26. if setup() is a function in the Arduino IDE, what is loop()?

a. loop() itself is a function, however it gets called infinitely in a loop after the execution of the setup() function by the Arduino compiler. This is pretty specific to Arduino programming and not found in many other places where one might write programs.
b. A loop, duh! It’s in the name.
c. Both?

27. What's the correct way to write an “if/else” statement?

a. If(condition) {
        else{
            //code
        }
    }

b. If(condition) {
        //code
    }
    else {
        //code
    }

c. If(else) {
        //code
    }