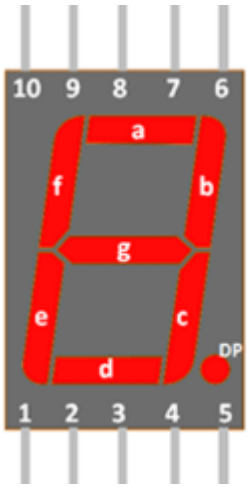
Using the Base 10 Decoder and Seven Segment Display

Name:_____ Date: _____

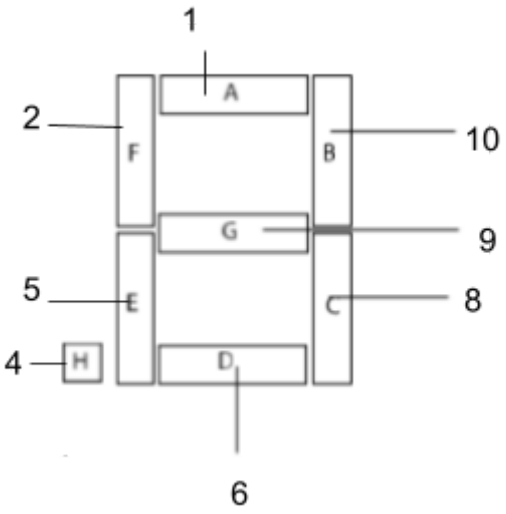
1. Diagram of a common cathode 7 segment display:



2. Setup the seven segment display so that you can test it.

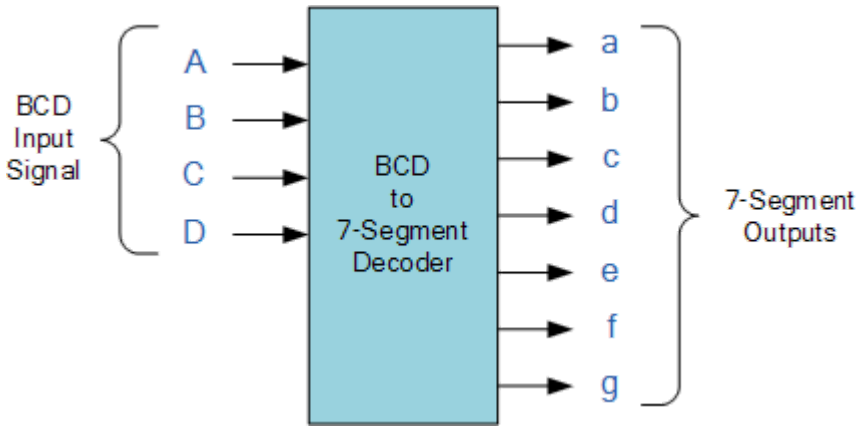
- Connect pins 3 and 8 to Ground using a 220 Ohm resistor. Remember that ground is the negative end of the battery.
- All other pins will connect to power (+5 volts) directly to light up each segment.
- Use other wires to light up other segments but remember to activate them you need to connect them to power (+5 volts).
- Complete the diagram below,

3. Show the pin number that lights each segment of the display. Double-click on the drawing below to add in the pin numbers using the text tool.



4. The chip CD4511is the binary to base 10 decoder chip. In Tinkercad, you need to type in "7-Segment Decoder" under All Components to find it. It is used to convert a binary digit into decimal form and send the appropriate output to a seven segment display.

- Use the diagram below to connect the decoder and the display (REMEMBER TO USE THE RESISTORS TO REDUCE THE CURRENT FLOWING TO THE DISPLAY)
- When you have the circuit wired properly, complete the truth table.



Do a search online to find the pinout diagram of the 74LS47. Label it below so that you know how to connect it.

5. Complete the following truth table:

D	C	B	A	Display
0	0	0	0	0
0	0	0	1	8
0	0	1	0	4
0	0	1	1	-
0	1	0	0	2
0	1	0	1	-
0	1	1	0	6
0	1	1	1	-
1	0	0	0	1
1	0	0	1	9
1	0	1	0	5
1	0	1	1	-

1	1	0	0	3
1	1	0	1	-
1	1	1	0	7
1	1	1	1	-

6. In your own words, explain the results of the truth table.

The truth table only displays binary digits that represent the decimal number ranging from 0-9. This is a single 7 segment display cannot represent 2 digit decimal display hence it can only represent numbers between 0-9.

Circuit