

Operator or Item	Basic Definition	Application Examples / References / Notes
" % "	The "Modulus" operator (Remainder). Returns the division remainder. E.g.s - 10%2=0; 10%3=1. For detecting positive and negative numbers; For ....???????	
*=	e.g. x *= y means x = x * y - Multiply the two	<a href="https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/Multiplication_assignment">https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/Multiplication_assignment</a>
**	<b>Exponentiation ??????</b>	
"="	sets the value of a variable to a number	
"=="	when "testing" a value; "is equal to"	<a href="https://www.w3schools.com/js/js_comparisons.asp">https://www.w3schools.com/js/js_comparisons.asp</a>
"==="	true if both operands of same type and same value; false if not	
"+="	addition of two values	
"-="	Subtraction - e.g. x -= y returns x-y	<a href="https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/Subtraction_assignment">https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/Subtraction_assignment</a>
"++"	iterates by one	
"!"	Called a "bang", a logical "not" operator. Returns the reverse value - !true; // returns false	
"!="	Not equal to	
abs	absolute value of number returned	
array	<b>What is it and when to use it?????</b>	
break	Statement jumps out of loop (see "Continue")	
Calculators !!!	<b>Graphs, Charts, Math etc.</b>	<a href="https://www.desmos.com/calculator/hcamzueuj">https://www.desmos.com/calculator/hcamzueuj</a>
CamelCase	See "snake_case"	
channel	????????????????????????????????	
clamp	clamp(value, lo, hi)	Clamp the number within the inclusive range specified by boundary values lo and hi
colorPicker	????????????????????	
continue	Statement jumps over one iteration in the loop	
delta	elapsed time in ms	beforeRender(delta) - <b>NOT A VARIABLE</b>
export var	put before any functions or variables	
flake	????????????????????	
floor	rounds down to the nearest integer	
for		
h	hue 0 = red ; 0.02=Orange; 0.1=Yellow; 0.33=Green; 0.45=Mint; 0.5=Cyan; 0.66=Blue; 0.9=Violet	hue of hue saturation value; hsv = color
hsv	hue, saturation, value	
index	the position number of a given pixel	
"index / pixelCount"	returns 0...1 across all LEDs	
LOGICAL OPERATORS and COMPARISONS	"==; ===;	<a href="https://www.w3schools.com/js/js_comparisons.asp">https://www.w3schools.com/js/js_comparisons.asp</a>
Lookup Table		<a href="https://coderwall.com/p/6e7rea/consider-lookup-tables-instead-of-switch-or-if-else">https://coderwall.com/p/6e7rea/consider-lookup-tables-instead-of-switch-or-if-else</a>
(Max-Min)*v+Min	Gives a range from min to max	
max	max(v1, v2) ??????????????????	
min	min(v1, v2) ??????????????????	
mode	????????????????????	
next	returns an object with two properties done and value	?????????
operator precedence	multiply and divide before add and subtract, etc.	<a href="https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide/Expressions_and_Operators#operator_precedence">https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide/Expressions_and_Operators#operator_precedence</a>

pow (base, exponent) e.g. v=pow(2,index) returns v= 2 to the index power

random random(max) returns a random number btw 0.0 and max, not including max THIS IS **NOT AN INTEGER VALUE !!!**

render(index) Will run once for every pixel; the pixel's index(position in line) will be passed as "index". First LED is index=0; second is index 1, etc. An exported function, takes the single argument "index" called once per pixel, per frame

render rgb slider snake\_case See "CamelCase"

time(interval) A sawtooth waveform btw 0-1. loops every 65.536 sec.>> time(0.015) = 1 second; time(.1) = 6.535 seconds; time(1)= 65.536 seconds; Time to go through whole pixelCount

wave sinusoidal waveform. Loops per sawtooth/time waveform can be called independently.

xor Exclusive "or" - one value but not the other(s)