## OnClick Functions



## AERT("message")

Displays the value of the message in an alert box.
Starts an animation that will change the value of the attribute to the next value in a list of parameters every half a second. E.g. if the ONCLICK haltribute contains attribute contains ANIMATE( $\left." X^{\prime \prime}, 0,100\right)$, and the
clicks on the component, the component would animate the value component would animate the valu
of the " X " attribute between o and 100. A subsequent click would animate back to o from 100. If more than two animate states are passed then the value will toggle between them in order.
ANIMATESLOW(attribut
e, state1, state2, ...
stateN)
ANIMATEFAST(attribute,
state1, state2, ... stateN) ANIMATECUSTOM("attri bute", time, easein, easeout, state1, ...stateN) tate,

## OTOSCENE("sceneNam

 e," time, easein, easeout)
## REDRAW()

## SET("attribute", state

 state2, ...stateN)Same as animate, but slower (one second).
Same as animate, but faster (a quarter of a second).
Same as animate, but with over an arbitrary time with easing. Refer to the ANIMATE function for information about easing. Moves to a scene identified by a Moves to a scene identified by a
name or number. Refer to the ANIMATE function for information about easing. Redraws the component that contains this function. Sets a given attribute to the next state in a list.

## Math Functions

| ABS(number) | Returns the absolute value of number. |
| :---: | :---: |
| CEILING(number, significance) | Rounds a number to the nearest integer or multiple of significance. The significance argument is the value whose multiple of ten is the value to be rounded up (.01, . $1,1,10$, etc.). |
| DEGREES(number) | Converts the number(in radians) to degrees. |
| EVEN(number) | Rounds the number up to the nearest even integer. |
| EXP(number) | The EXP function returns e raised to the power of number |
| FLOOR(number, significance) | The FLOOR function rounds the number down to the nearest multiple of significance. |
| INT(number) | The INT function rounds the number down to the nearest integer. |
| ISEVEN(number) | TRUE if the number is an even integer, or FALSE if the number is odd. If the number is not an integer, the function evaluates only the integer part of the number. |
| ISODD(number) | TRUE if the number is an odd integer, or FALSE if the number is even. If value is not a number, the function evaluates only the integer part of the number. |
| LN(number) | Returns the natural logarithm based on the constant e of the number. |
| LOG10(number) | Returns the base-10 logarithm of the number. |
| ODD(number) | Rounds the number up to the nearest odd integer |
| Pl() | Returns the value of PI to fourteen decimal places. |
| RADIANS(number) | Converts the number (in degrees) to radians. |
| RAND() | Returns a random number between o and 1. |
| RANDBETWEEN(bottom, top) | Returns a whole number between the bottom and top number |
| Using HTML in the Description and Summary fields |  |
| Valid tags (All other tags are ignored): <u>, <strong>, <em>, <p>, <br>, <ol>, <font> <br> Additionally: <br> - No style attributes are allowed. Us | <a>, <b>, <i>, ,ul>,<li>, <br> instead. <br> - Only HTTP link tags (<a>) are allowed. No custom URI <br> - No attributes are allowed for tags other than for <a> and <font>. For example, the tag <br> is allowed, but <br clear="all"> is not allowed. |

## SketchUp Dynamic Components Functions

| CHOOSE(index,valu e1,value2, ...valueN) | Returns a value from a list of parameters at the location of the index value. This function allows you to create a single drop-down list that drives multiple attribute changes at once. E.g.: CHOOSE(2,"Blue","Red","Green") (results in "Red"). Use CHOOSE and OPTIONINDEX together as a mechanism to assign different values depending on a user's choice in the Component Options dialog box. <br> E.g. to choose a price based on user choice of materials: =CHOOSE (OPTIONINDEX("Material"), 100, 150, 200) | CHAR(number) | Returns the character represented by the ASCII code number |
| :---: | :---: | :---: | :---: |
|  |  | CODE(text) | ASCII value of the first character in text |
|  |  | CONCATENATE(text1, text2, ...textN) | Combine the strings into a single string |
|  |  | DOLLAR(value, decimals) | Converts a number to currency text format. . The decimals (optional) argument is the number of decimal places. If no |
| CURRENT("attribute Name") | Accepts a string name of an attribute, and returns the size or position attribute that the SketchUp user just applied. This function allows you to do validation of Scale tool or Move tool actions. <br> E.g. When the below formula is entered into the LenX value field, it constrains the component to the nearest width, within 2 inches, after scaling. <br> =ROUND(CURRENT("LenX")/2)*2 |  | decimals value is specified, all numbers in the currency format will be displayed with two decimal places. |
|  |  | EXACT(text1, text2) |  |
|  |  | EXACT(text1, text2) | Returns TRUE if both strings are identical. This function is case-sensitive. |
| EDGES() | Returns the number of 'ungrouped' edges inside the component or group | FIND(findText, text, | earch for findText in the string text, starting in position ptional) characters from the beginning. The search is cas |
| FACEAREA("material Name") | Returns the area (in square inches) of every 'ungrouped' face that is painted with the materialName. Returns the total area of all ungrouped faces in model when the materialName is not provided. <br> E.g. Return the square inches of Oak material inside the component or group: =FACEAREA("Oak") |  | nsitive. |
|  |  | LEFT(text, number) | eturns the first number characters in text string. |
|  |  | LEN(te | Returns the count of characters in text including spaces. |
| FACES() | Returns the number of 'ungrouped' faces inside the component or group | LOWER(te |  |
| LARGEST(value1,val ue2,...valueN) | Returns the largest of the values in a list. E.g.: The following example, when entered into the LenX value field, constrains the component so it cannot be scaled more than the largest of either the value of LenX, 20, or 10: <br> =LARGEST(CURRENT("LenX"), 20, 10) | MID(text, start, number) | onvert text to lower case <br> The MID function returns a text segment of a text string. The ext argument is the text string. The start argument contains e position of the first character in the text to extract. The |
| LAT(), LNG() | Return the latitude or longitude of the current Sketch Up model |  | number argument is the number of characters to return. |
| NEAREST(originalVa lue, value1, value2, ...valueN) | Compares the originalValue with a list of target values, and returns the target value that is closest to the originalValue. <br> E.g. When entered into the LenX value field, will cause the component to snap to the nearest width of 24,36 , or 48 after scaling: <br> = NEAREST(CURRENT("LenX"),24,36,48) | PROPER(text) | Capitalizes the first letter in all words of the provided text string. |
|  |  | REPLACE(text, position, length, new) | Replaces the characters beginning in position from the beginning of text with length characters of new string. |
| OPTIONINDEX("attri buteName") | Returns the currently selected index from its option list given a string name of an attribute. For example, if an attribute can be 'red,' 'blue,' or 'green,' and blue is the current value, this function returns 2 . If no match is found, o is returned. | REPT(text, number) | Returns a repeating string text, for a number of times e.g. REPT ("*",10) |
|  |  | RIGHT(text, number) | Returns the number of last characters in text strin |
| OPTIONLABEL ("attributeName") | Returns the currently selected label form its option list given a string name of an attribute. For example, if an attribute can be 'Red=red', 'Blue=blue', or 'Green=green', and blue is the current value, this function returns 'Blue.' If no match is found, an error is raised. | SUBSTITUTE(text, searchText, newText, occurrence) | Substitutes new text for old text in a string. text is the old text string, searchText is the segment in text o be replaced and newText is the replacement text. The occurrence (optional) argument indicates the number of occurrences of searchText to be replaced. If the occurrence is missing, the search text is replaced throughout. |
| SMALLEST(value1,v alue2,...valueN) | Returns the smallest of the values in a list. E.g. When entered into the LenX value field, constrains the component so it cannot be scaled less than the smallest number (the value of LenX, 20, or 10). |  |  |
|  |  | TRIM(text) | Removes spaces in front of a text string |
| SUNANGLE() | Returns the angle (in degrees) between the sun and the model's North direction. | UPPER(text) |  |
| SUNELEVATION() | Returns the elevation (in degrees) of the sun from the current model's shadow settings. The elevation is defined as the angle between a vector pointing at the sun and the ground plane. | VALUE(text) | Convert text to upper case Converts the string text to its number value equivalent |

## Text Functions

CHAR(number)

CONCATENATE(text 1 ,
text2, ...textN) DOLLAR(value, decimals)

EXACT(text1, text2)
EXACT(text1, text2)
FIND(findText, text,
position)
LEFT(text, number)
LEN(text)

MID(text,

PROPER(text)
REPLACE(text,
position, length, new)
REPT(text, number)
RIGHT(text, number)
SUBSTITUTE(text, searchText,
occurrence)

JPPER(tex

VALUE(text)

## Logical Functions

| AND(logicalValue1, <br> logicalValue2, <br> _.logicalValueN) | Returns true if all logical values <br> evaluate to true |
| :--- | :--- |
| FALSE() | Sets the logical value to FALSE |
| IF(test, thenValue, <br> elseValue) | If test evaluates to TRUE then the <br> value of thenValue is returned, else the <br> value of elseValue is returnes |
| NOT(logicalValue) | Evaluates to TRUE if any of the logical <br> values evaluate to TRUE |
| OR(logicalValue1, <br> logicalValue2, <br> $\ldots . . l o g i c a l V a l u e N) ~$ | Returns TRUE |
| TRUE() |  |

## Trig Functions

| ACOS (number) | Inverse cosine of number in degrees |
| :--- | :--- |
| ACOSH (number) | Inverse hyberbolic cosine |
| ASIN (number) | Inverse sine |
| ASINH (number) | Inverse hyberbolic sine |
| ATAN (number) | Inverse tangent |
| ATANH (number) | Inverse hyberbolic tangent |
| COS (number) | Cosine |
| COSH (number) | Hyberbolic cosine |
| SIN (number) | Sine |
| SINH (number) | Hyberbolic sine |
| TAN (number) | Tangent |
| TANH (number) | Hyberbolic tangent |

## Supported Operators

+ (add)
- (subtract)
( (divide)
< (less than)
$>$ (greater than)
<= (less than or equal to)
$>=$ (greater than or equal to)
= (equal)
() (parentheses)
<> (not equal to

