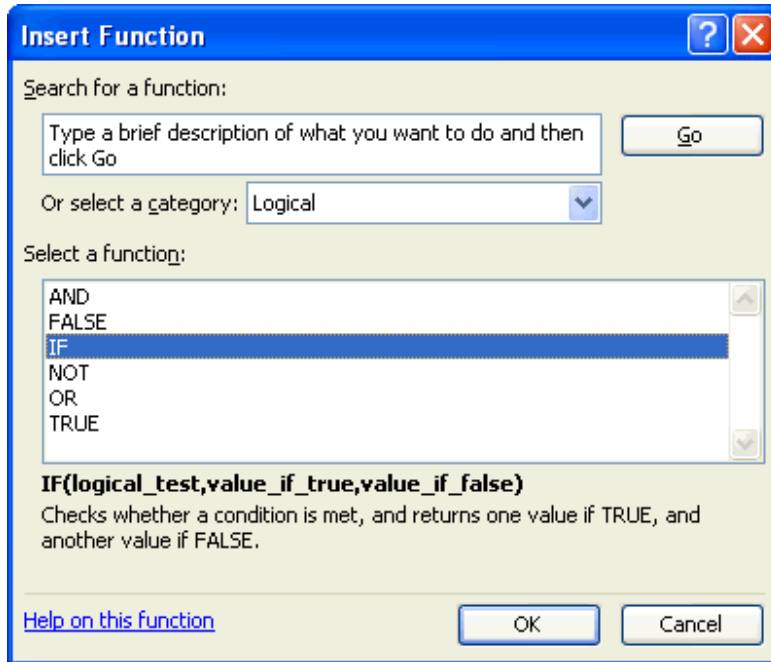


Making Decisions using the Logical Functions

The use of IF statements with or without the AND or OR functions are very useful for decisions, especially when combined with check boxes, option buttons, and list boxes. You will find these operators as part of the Insert Function menu (see [Using the Insert Function capability](#)).



Here is the syntax for three that are commonly used:

IF(logical_test,value_if_true,value_if_false)

AND(logical1,logical2,...logical30) here **all** must be TRUE

OR(logical1,logical2,...logical30) here **only one** need be TRUE

Here is an example where text can be turned on or off using a Check Box. Quotation marks are used to deliver text, while " " delivers a blank when false. This is a good way to hide information.

	What does "MVHS" stand for?	
FALSE	<input type="checkbox"/> Do you want the correct answer?	

	What does "MVHS" stand for?	
TRUE	<input checked="" type="checkbox"/> Do you want the correct answer?	
	Maryland Virtual High School	
In the green cell you find the formula: =IF(G6=TRUE,"Maryland Virtual High School","")		

Text can be linked to numerical conditions as well such as IF(G6>2,"high value","").

Here if the value in G6 goes above 2, the comment *high value* will appear in the cell otherwise the cell is blank. This is a good way to alert students with information.

Here is a list of the comparison operators used in Excel.

symbolism	meaning
=	equal
>	greater than
<	less than
>=	greater than or equal
<=	less than or equal
<>	not equal

Use of a Check Box to return the true or false can be used with a calculation to turn plotted data on a graph on and off (see [Turning a set of data on-off on a graph](#)). With the Check Box linked to cell C6:

=IF(\$C\$6=TRUE, formula for actual calculation, some dummy value)

The dummy value when FALSE sends the graphed data off the plotted scales or hides it.

Use a nested IF statement that references C5 to change something on selection from the List Box or Option Buttons linked to C5.

=IF(C5=1, do this, IF(C5=2, do second thing, IF(C5=3, do a third thing, "")))

This is like an if/then statement. You can nest up to 7 IF statements in Excel.

The use of the OR function is used considerably on [Interactive Periodic Trends](#). Here the various data are plotted at certain times in combination using the Option Buttons, which deliver values of 1 to 7 to cell K5

=IF(OR(\$K\$5=2,\$K\$5=4,\$K\$5=6,\$K\$5=7),G27,-10)

The data in G27 will plot when 2, 4, 6, or 7 is returned otherwise the -10 occurs to keep the data off scale on the plot. This is what allows either a single set of data or multiple sets to be plotted on the graphs.