

Section 3

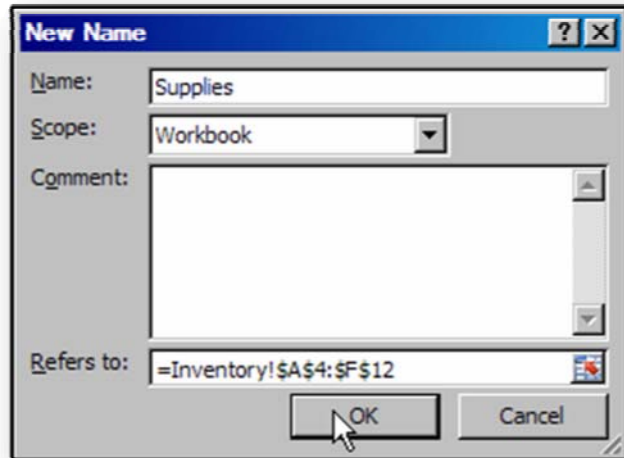
Lookup Formulas

Lookup tables provide the ability to quickly reference data stored on a worksheet in column and row format. Instead of looking through a three page inventory sheet for prices, lookup formulas allow you to instantly pull data from an existing list. With lookup formulas, it is possible to use either range *names* or range *addresses* for each variable. There are two common lookup formulas, VLOOKUP and HLOOKUP. Data arrangement determines the formula used. If column headings appear in the first row of the list, use the VLOOKUP (vertical lookup) formula. If row headings appear in the first column of the list, use the HLOOKUP (horizontal lookup) formula. In this section, all lists are designed with column headings in the first row of the table so you will apply the VLOOKUP formula.

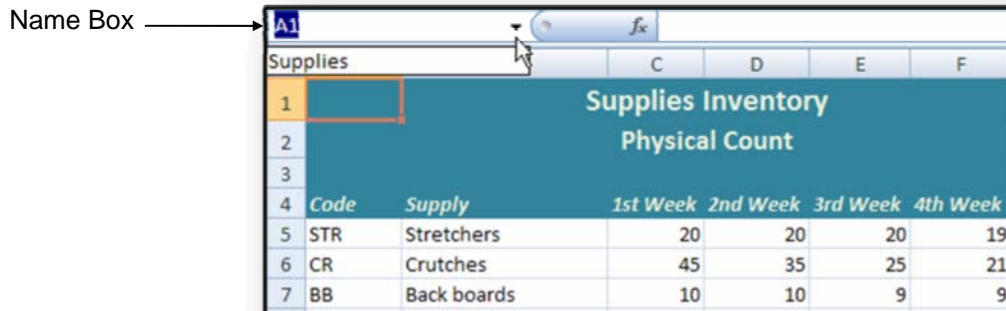
Assign Range Names

One way to reference a list in a worksheet is to assign a range name to the data. In this exercise, you will open the file **Supplies Inventory** and assign a range name to the data on the **Inventory** worksheet. This name will be used in the lookup formulas to refer to the supplies. In Excel, a range name must include the column header row associated with the data.

1. Open the file **Supplies Inventory**.
2. Activate the **Inventory** worksheet and click cell **A4**.
3. Hold the <Ctrl> and <Shift> keys down and press <End>. *All cells on the worksheet containing data are selected.*
4. Right-click the selected range.
5. Choose **Name a Range...** from the context menu. *The New Name dialog box appears. The word **Code** is selected in the **Names:** box since that is the text contained in the first cell of the selected range **A4:F14**.*



6. Type **Supplies**.
*The text replaces the word **Code** in the text box.*
7. Verify that **=Inventory!\$A\$4:\$F\$14** appears in the **Refers to:** text box.
8. Click **[OK]**.
9. Press **<Ctrl> <Home>**.
*Cell **A1** is selected.*
10. Click the **Name** box list arrow.
*The name **Supplies** appears in the list.*



11. Click the range name **Supplies**.
*The range **A4:F14** is selected.*
12. Click a single cell to deselect the range.
13. Save the file with the new range name.

Lookup Formulas

A Lookup Formula uses three or four arguments to complete the formula. Arguments in a formula are separated by commas. The syntax for a lookup formula is shown below:

=VLOOKUP(lookup_value, table_array, col_index, range_lookup)

lookup_value	the cell which is being compared to the table
table_array	the entire table or list of information
col_index	the column number (NOT the column letter) where the required data is located within the table
range_lookup	this value is either TRUE or FALSE. Answering TRUE will find a value match if the values are in alphanumeric order. The FALSE argument will look for an exact match in the table whether or not the values are sorted alphanumerically.

In the following exercise, you will create a lookup formula to locate a weekly count from the **Inventory** worksheet.

Notice that each renewable supply code is listed in column A of the **RunningSum** worksheet. This code will be used for the **lookup_value**.

The table **Supplies** has already been defined on the **Inventory** worksheet. This is the **table_array** in the lookup formula.

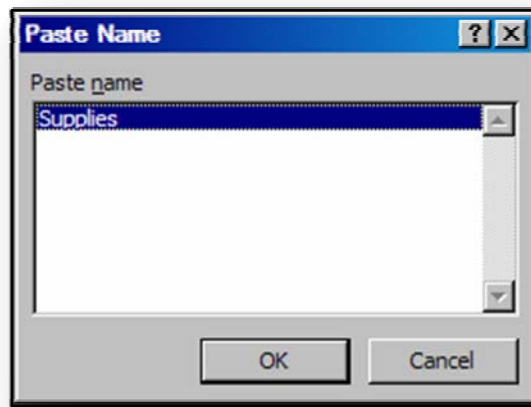
Quantities are represented by week for each item. The quantities 1st Week reside in the **C** column on the **Inventory** worksheet. Since **C** is the third column on the worksheet, the number **3** will comprise the **col_index**.

Since the codes are not in alphabetical order in the Supplies table, the FALSE argument will be required to locate the appropriate Quantity.

Create a Lookup Formula

When you have completed this exercise, the Quantity for Week 1 for each item will appear on the **RunningSum** worksheet.

1. Activate the **RunningSum** worksheet.
2. Select cell **C4**.
3. Type: **=VLOOKUP(**
*The formula bar activates. The ToolTip prompts for the **lookup_value**.*
4. Click cell **A4**.
The formula updates to: =VLOOKUP(A4
5. Type a comma.
6. Press the **<F3>** function key.
The Paste Name dialog box opens.



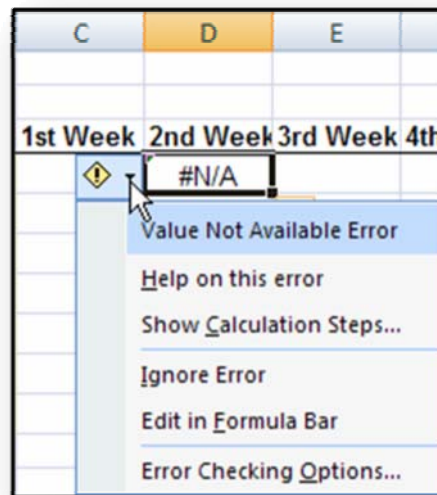
7. Select the **Paste name: Supplies**.
8. Click **[OK]**.
The formula updates to: =VLOOKUP(A4,Supplies
9. Type a comma.
10. Type the number **< 3 >**. (This is the number for Column C that contains the quantities for Week 1.)
11. Type a comma.
12. Click to select the option **FALSE**.
13. Press **<Enter>** to complete the formula.
The number 45 appears in the cell.
14. Click the **Inventory** worksheet and verify that this is the correct quantity for stretchers for the 1st week.
15. Save the file with the formula.
16. Copy the formula down to **Row 10**.

Edit a Lookup Formula

When you copy the formula down the column, the relative cell addressing updates the lookup_value cell addresses. When you begin to copy the formula across the columns for successive weeks, it will be necessary to create absolute cell addresses for the A column.

1. Click cell **C4**.
2. Copy the lookup formula to **D4**.
3. The error message **#N/A** appears in cell **D4**.

*Click cell **D4** and the information icon for help with the formula.*



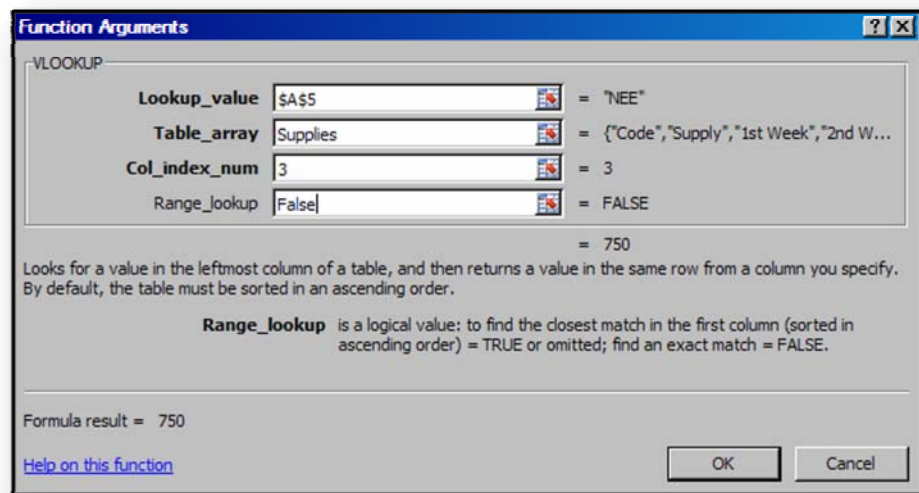
4. Double-click cell **D4** to edit the formula.
*It is apparent that the lookup_value for cell **A4** has updated to **B4**, creating the error message.*
5. Press the **<Esc>** key or click the red **X** on the Formula Bar.
6. Delete the formula in cell **D4**.
7. Double-click cell **C4** to open the formula for editing.
8. Position the cursor after **A4** in the formula.
9. Press the function key **<F4>** three times until the **\$** appears only in front of the letter **A**.
*The lookup_value cell address updates to **\$A4**.*
10. Press **<Enter>** to accept the change.
11. Copy the formula to cell **D4**.
12. Edit the formula in **D4** to look in column 4 (for week 2).
13. Continue to update the formulas and copy to the remaining items.
14. Save the file after all weekly counts have been updated.

Function Argument Boxes

The function argument box may also be used to create or edit complex functions. Click a cell containing the function to be updated and press the <Shift> and the <F3> function key or click the *fx* button on the Formula Bar. Either method will open the Function Argument box displaying the existing function arguments, allowing you to edit each argument individually.

1. Select cell **C5**.
2. Press the <Shift> <F3> function key.

The existing formula populates the Function Arguments box.



3. Click in the **Lookup_value** box and press <F4>.

The cell address updates to A\$5.
4. Press <F4> again.

The cell address updates to \$A5.
5. Press <F4> a third time

The cell address updates to A5.
6. Press <F4> a fourth time or click [Cancel].

Verify the final cell address is \$A5.
7. Save and close the **Supplies Inventory** file.



When editing formulas, press <Shift> and the <F3> function key to open the Function Arguments dialog box. Press <F3> to insert a range name in a formula.