

## USING LOOKUP FUNCTIONS

The Lookup Functions are used to locate data within a table. This can be done in one of two ways; vertically or horizontally.

### VLOOKUP

The VLOOKUP function locates data in a particular column of a table. With this function, the kind of data and column number is specified. Once this is completed, VLOOKUP returns the actual table value. A properly formed VLOOKUP function has four arguments, as shown in the following definition: **=VLOOKUP(lookup\_value,table\_array,col\_index\_num,range\_lookup**. The following table summarizes the values Excel expects for each of these arguments.

Argument	Expected Value
Lookup_value	This is the value that is found in the first column of the named range. It is specified by the table_array argument. The lookup_value argument can be a value, a cell reference, or a text string.
Table_array	This is the table that will be used to look for the data that specifies the criteria. It is the range that is to be searched for the data.
Col_index_num	This is the column in the named range that contains the value that is to be returned.
Range_lookup	This is a TRUE or FALSE value, indicating whether the function should find an approximate match (TRUE) or an exact match (FALSE) for the lookup_value. If this is left blank, the value for this argument is TRUE.

- ❖ Open the document, **Car Loan** from the area where it was stored when it was downloaded from the Excel Web page.
- ❖ Click cell **C10**.
- ❖ Type **=VLOOKUP(**.
- ❖ Click cell **C8** and type a comma. This will select the term of the loan in years.
- ❖ Select the range **C14:I17**. This will select the table that is to be used to lookup the monthly payment.
- ❖ Type a **comma** and then the number **5**.
  - This indicates that column 5 in the table should be checked for the information.
  - The columns are counted from left to right, starting with the first column specified in the Table Array.
  - In this case it would be column C.
- ❖ Press **Enter** to accept the formula.
- ❖ This function will:
  - Lookup the Loan Term Desired, which is 5. This is specified by the range C8.
  - Lookup the Interest Rate which is located in column 5 of the selected range.
  - Return the amount of the Monthly Payment.
- ❖ This function will look across the columns until it finds column 5.
- ❖ After it finds the column, then it looks at the rows to locate the number in cell C8.
- ❖ It then returns the value that is located in the cell where the column and row information meets.

## Match

The Match function is used to determine the column number based on a changing value entered in a cell. The MATCH function is nested inside the VLOOKUP or HLOOKUP function, taking the place of an actual column or row number. The format for the MATCH function is: **=MATCH(lookup\_value,lookup\_array,match\_type)**. The table below describes these arguments:

Argument	Expected Value
Lookup_Value	This is the value that you want to look up or a cell address where that value can be found.
Lookup_Array	This is the range in which the list of values you want to search through may be found.
Match_Type	This is either 0, 1, or -1, depending on how accurate you want the match to be. If the match_value is omitted, it is assumed to be 1.
0	Use this to find the first value that's an exact match. The list can be in any order.
1	Use this to find the largest value that's less than or equal to the lookup_value. The list must be sorted in ascending order.
-1	Use this to find the first value that is greater than or equal to the lookup_value.

- ❖ Click in cell **C10**.
- ❖ Click the **Formula Bar**.
- ❖ Delete the number **5** at the end of the formula.
- ❖ Type **Match(**.
- ❖ Click cell **C7**, which is the Interest Rate, and then type a comma.
- ❖ Select the range **D13:I13** and then type a comma. These are the cells that contain the percentages that indicate the Interest Rates.
- ❖ Type **0)+1** and then press **Enter**.
  - A number one is added in order to specify the correct column for the interest rate.
  - Because the data range that was selected does not include the first column in the table, a number 1 has to be added in order to specify the correct column in which to look for the data.

## HLOOKUP

The HLOOKUP function locates data in a particular row of a table. With this function the kind of data and the row are specified. Once this is done, HLOOKUP returns the actual table value.

- ❖ If necessary, open the document, **Car Loan** from the area where it was stored when it was downloaded from the Excel Web page.
- ❖ Click cell **H10**.
- ❖ Type **=HLOOKUP(**.
- ❖ Click cell **C7**, which is the Interest Rate, and type a comma.
- ❖ Select the range **D13:I17**. This is the location of the Table Array.
- ❖ Type a **comma** and then the number **4**. This indicates the row where the Monthly Payment is located.
- ❖ Press **Enter** to accept the formula.

- ❖ This function will:
  - Lookup the Interest Rate, which is 7.00%. This is specified by the range C7.
  - Lookup the Loan Term Desired which is located in row 4 of the selected range.
  - Return the amount of the Monthly Payment.
- ❖ This function will look down the rows until it finds row 4.
- ❖ After it finds the row, then it looks at the columns to locate the number in cell C7.
- ❖ It then returns the value that is located in the cell where the column and row information meet.