

## **LEARNING OBJECTIVES**

*After completing this lesson, you will be able to:*

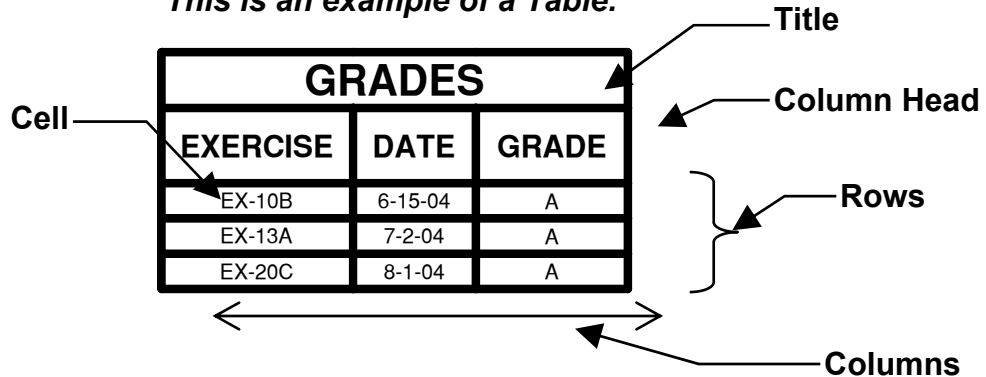
1. Create a Table
2. Insert a Table
3. Modify an existing Table
4. Insert a Block into a Table Cell
5. Insert a Formula into a Table Cell
6. Create a Field
7. Update a Field
8. Edit an existing Field
9. Break a table

# **LESSON 5**

# TABLES

A Table is an object that contains data organized within columns and rows. AutoCAD's Table feature allows you to modify an existing Table Style or create your own Table Style and then enter text or even a block into the table cells. This is a very simple to use feature with many options.

*This is an example of a Table.*



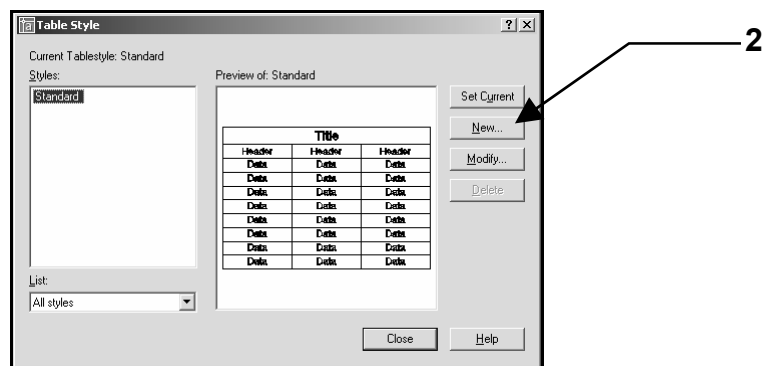
## HOW TO CREATE A TABLE.

1. Select the Table Style command using one of the following:

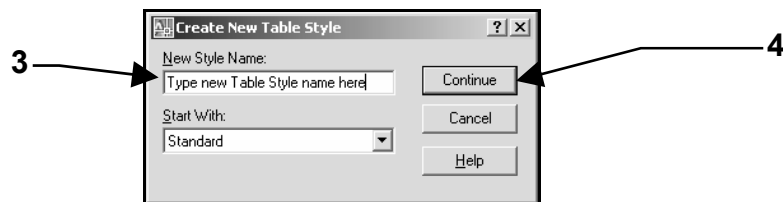
**Ribbon = Annotate tab / Tables panel / ↘**

**Keyboard = ts**

*The following dialog box will appear.*



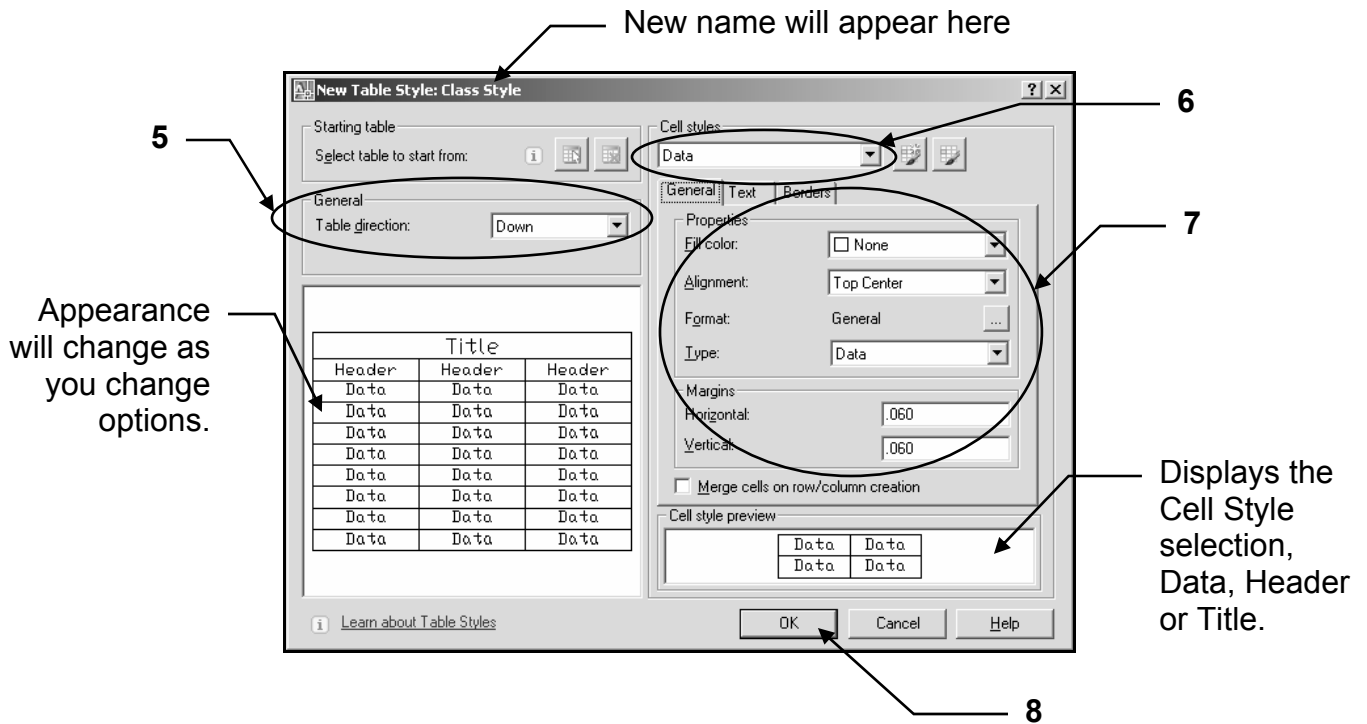
2. Select the **NEW** button. *The following dialog will appear.*



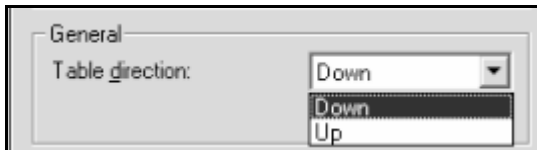
3. Enter the new Table Style name. *Note: When you create a new table style you always "Start With" an existing style and you specify the differences.*

4. Select the **Continue** button.

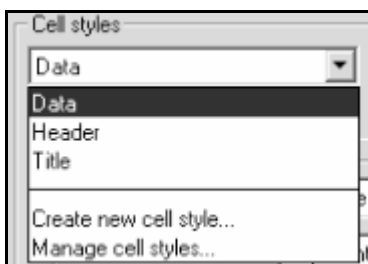
The New Table Style dialog box appears. Customize the table by selecting options described below.



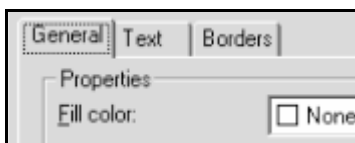
5. Select which direction you want the table displayed.  
**Up:** Title and Header at the Bottom then data follows.  
**Down:** Title and Header at the Top then the data follows.



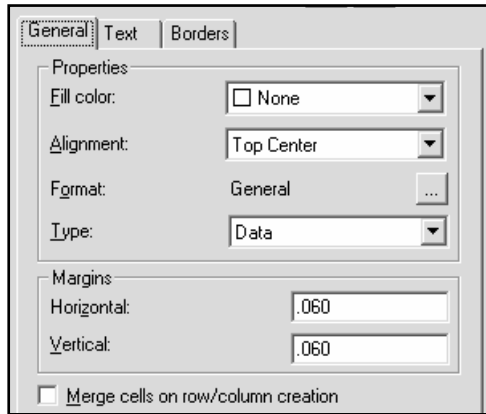
6. Select the Cell style that you wish to modify. (Data, Header or Title)



7. Select one of the Properties tabs after you have selected which “Cell Style” that you wish to modify.



## General tab



**Fill Color:** Background color of cell.

**Alignment:** Justification for the text inside the cell.

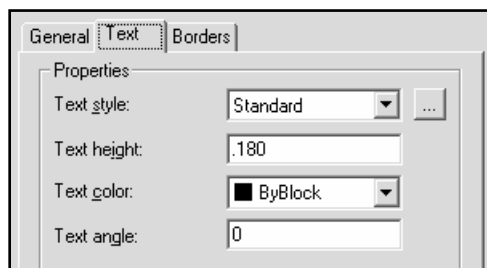
**General button:** Formats the cell content to: angle, currency, date, decimal number, general (default), Percentage, Point, Text or whole number.

**Type:** Cell style either Label or Data

**Margins:** Controls the spacing between the border of the cell and the cell content. Margins apply to all cells in the table.

**Merge cells on row/column creation:** Merges any new row or column created with the current cell style into one cell.

## Text tab



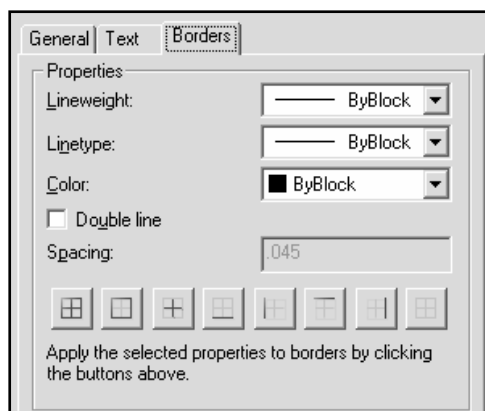
**Text style:** List all text styles in the drawing. Click the button to create a new text style.

**Text height:** Sets the text height

**Text color:** Specifies the text color

**Text angle:** Specify the rotation angle of the text.

## Borders



**Lineweight:** Selects lineweight for cell border

**Linetype:** Selects the linetype of the cell border.

**Color:** Select color for cell border.

**Double line:** Border lines are displayed as double lines.

**Spacing:** Specifies the double line spacing.

**Border Buttons:** Controls the appearance of the gridlines.

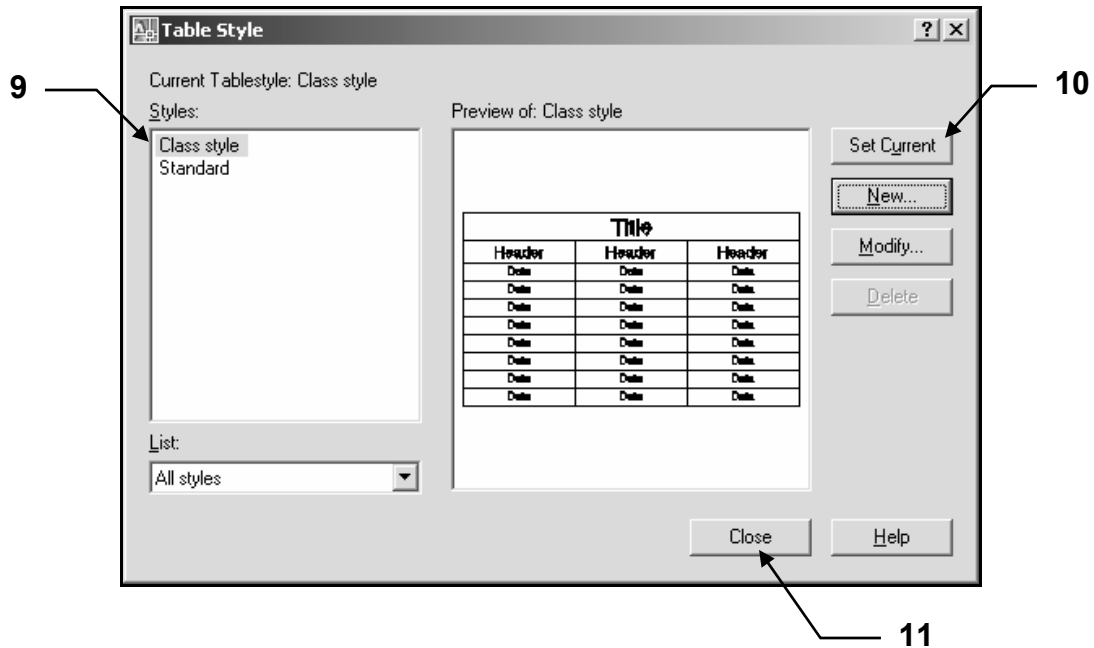
8. Select **OK** button after all selections have been made.

**Note: Tables are saved in the drawing. If you open another drawing you need to copy the previously created table using Design Center. (Refer to Lesson 10)**

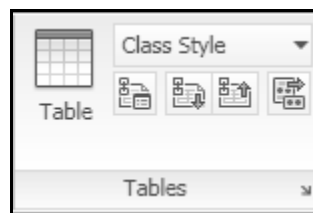
9, Select the Table Style from the list of styles.

10. Select “**Set Current**” button.

11. Select the “**Close**” button.



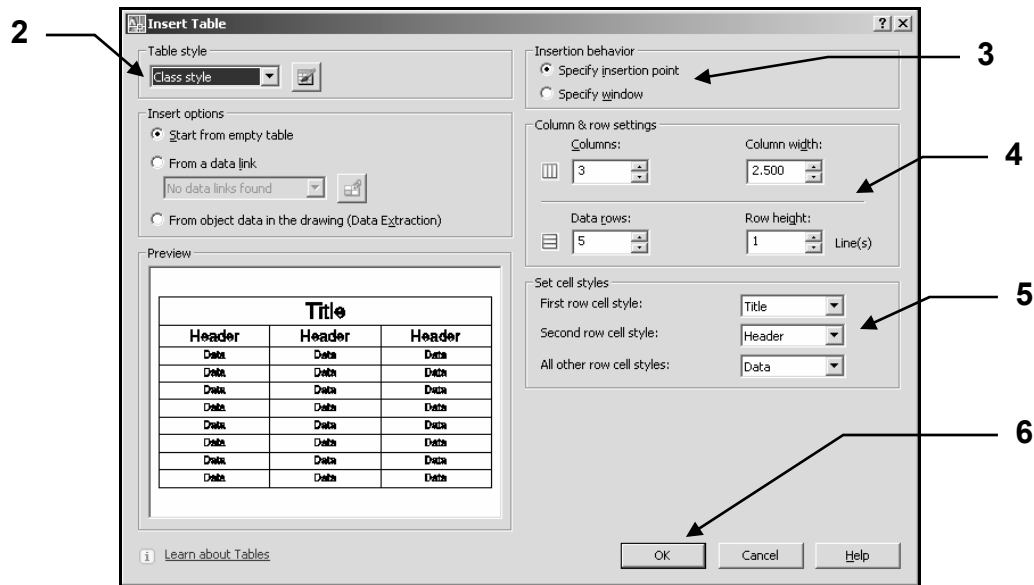
The new style is now displayed in the Tables Panel.



# How to Insert a Table

1. Select **Table**  from the Table panel or type: **Table <enter>**

*The Insert Table dialog box will appear.*



2. Select the Table Style

3. Select the Insertion behavior.

**Specify Insertion Point:** When you select the OK button you select the location to insert the table with the Columns and Rows previously selected.

**Specify window:** When you select the OK button you select the location for the upper left corner of the table. Then drag the cursor to specify the Column width and number of Rows, on the screen.

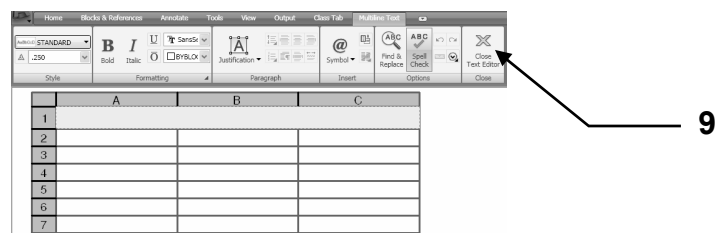
4. Specify the Column and Row specifications.

5. Set cell styles: Specifies the Row settings if you haven't selected a previously created Table Style.

6. Select **OK** button.

7. Place the Insertion Point. (The table will be attached to the cursor)

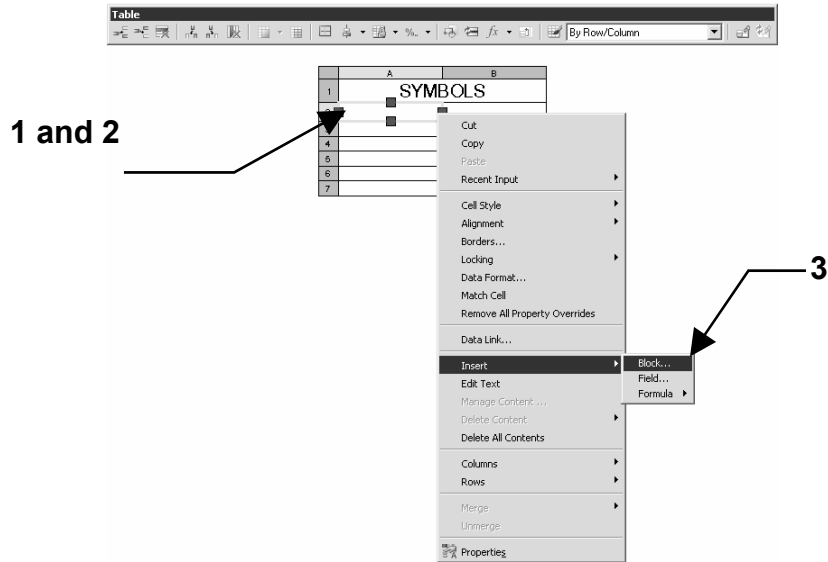
8. The Table is now on the screen waiting for you to fill in the data, header and title.



9. When you have filled all of the cells, select **Close**.

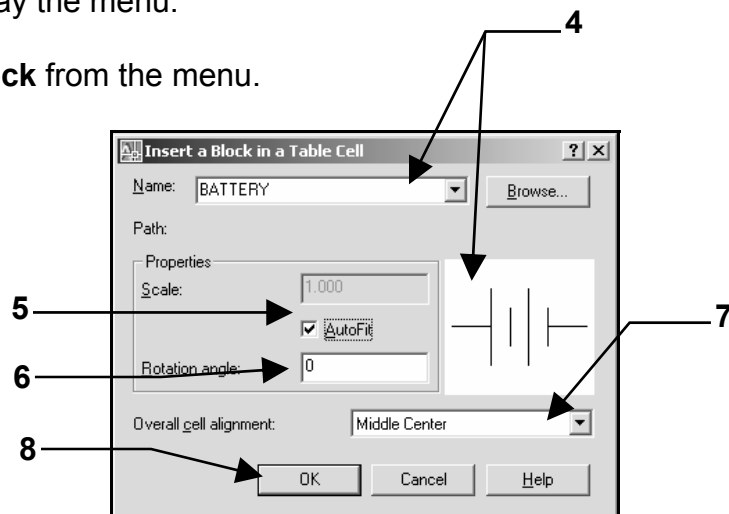
# HOW TO INSERT A BLOCK INTO A TABLE CELL

1. Left click in the cell you wish to insert a block.



2. Right click to display the menu.

3. Select **Insert / Block** from the menu.



4. Select the **Block name** (a preview appears)



5. Select the **Scale**.

Note: **AutoFit** will automatically size the block to fit within the cell.

6. Select **Rotation angle**.

7. Select the **Overall cell alignment**.

8. Select the **OK** button.

SYMBOLS	
	Battery
	Diode



# HOW TO INSERT A FORMULA INTO A CELL

You may apply simple numerical operations such as Sum, Average, Count, set cells equal to other cells or even add an equation of your own.

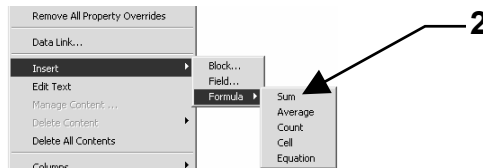
The following examples are for Sum and Average operations.

## SUM



1. Click in the Cell in which you want to enter a formula.

	A	B	C
1	SYMBOLS		
2	Appearance	Name	Quantity
3		Diode	2
4		Battery	4
5		TOTAL	



2. Right click and select:  
**Insert / Formula / Sum**

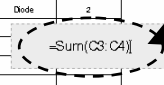


3. Select the cells content to sum using window.



	A	B	C
1	SYMBOLS		
2	Appearance	Name	Quantity
3		Diode	2
4		Battery	4
5		TOTAL	

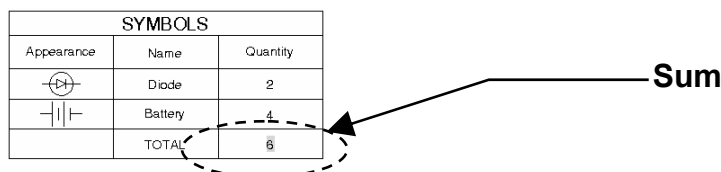
4. **Verify** the formula and select **Close Text Editor**.  
You may edit the formula if necessary.

	A	B	C
1	SYMBOLS		
2	Appearance	Name	Quantity
3		Diode	2
4		Battery	4
5		TOTAL	



Notice the formula disappears and the sum of the cells selected has been calculated. Also the value is shaded to make you aware that this cell has a formula in it.

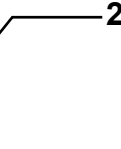
SYMBOLS		
Appearance	Name	Quantity
	Diode	2
	Battery	4
	TOTAL	6



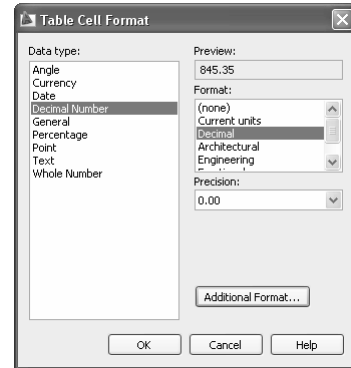
# AVERAGE

1. Click in the Cell that you wish to enter a formula.

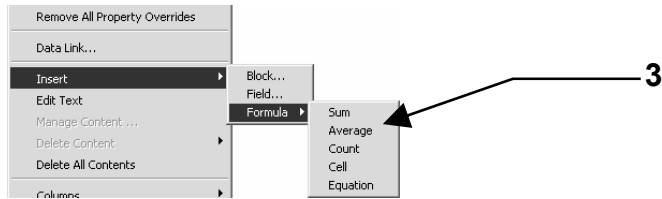
ROOM	TABLES	CHAIRS	COST
B14	2	4	100
F22	3	6	400
G7	4	8	500
TOTAL	9		
AVERAGE			



2. Set the data type, format and precision:  
a. Rt. Click in cell, b. Select **Data Format**  
c. Data Type: Decimal, d. Format: Decimal, e. Precision.




3. Right click and select:  
**Insert Formula / Average**



4. Select the cells content to average using a window.


ROOM	TABLES	CHAIRS	COST
B14	2	4	100
F22	3	6	400
G7	4	8	500
TOTAL	9		
AVERAGE			



5. Verify the formula and select **Close Text Editor**.  
You may edit the formula if necessary.

Notice the formula disappears and the average of the cells selected has been calculated.

ROOM	TABLES	CHAIRS	COST
B14	2	4	100
F22	3	6	400
G7	4	8	500
TOTAL	9		
AVERAGE			333.3



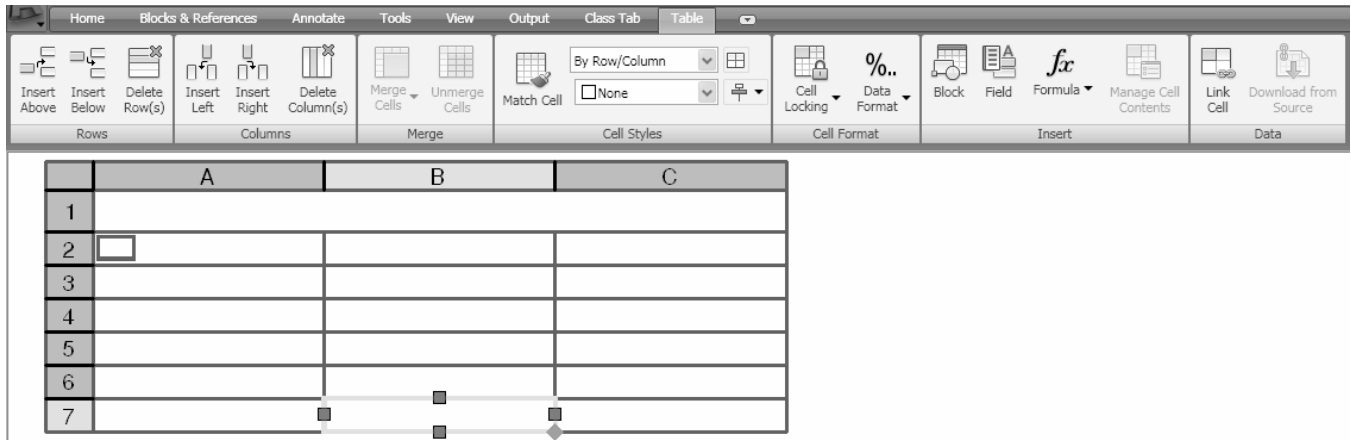
## Average

Note: If the precision is not what you want, refer to step 1 on this page.

## HOW TO MODIFY AN EXISTING TABLE

1. Click once in a cell and the Table editing ribbon tools will appear.

Experiment with all of the tools.



The screenshot displays the 'Table' ribbon in a software application, which is divided into several functional groups:

- Rows:** Includes 'Insert Above', 'Insert Below', and 'Delete Row(s)'.
- Columns:** Includes 'Insert Left', 'Insert Right', and 'Delete Column(s)'.
- Merge:** Includes 'Merge Cells' and 'Unmerge Cells'.
- Cell Styles:** Includes 'Match Cell' and a dropdown menu for 'By Row/Column' with a 'None' option.
- Cell Format:** Includes 'Cell Locking' and 'Data Format'.
- Insert:** Includes 'Block', 'Field', and 'Formula'.
- Data:** Includes 'Manage Cell Contents', 'Link Cell', and 'Download from Source'.

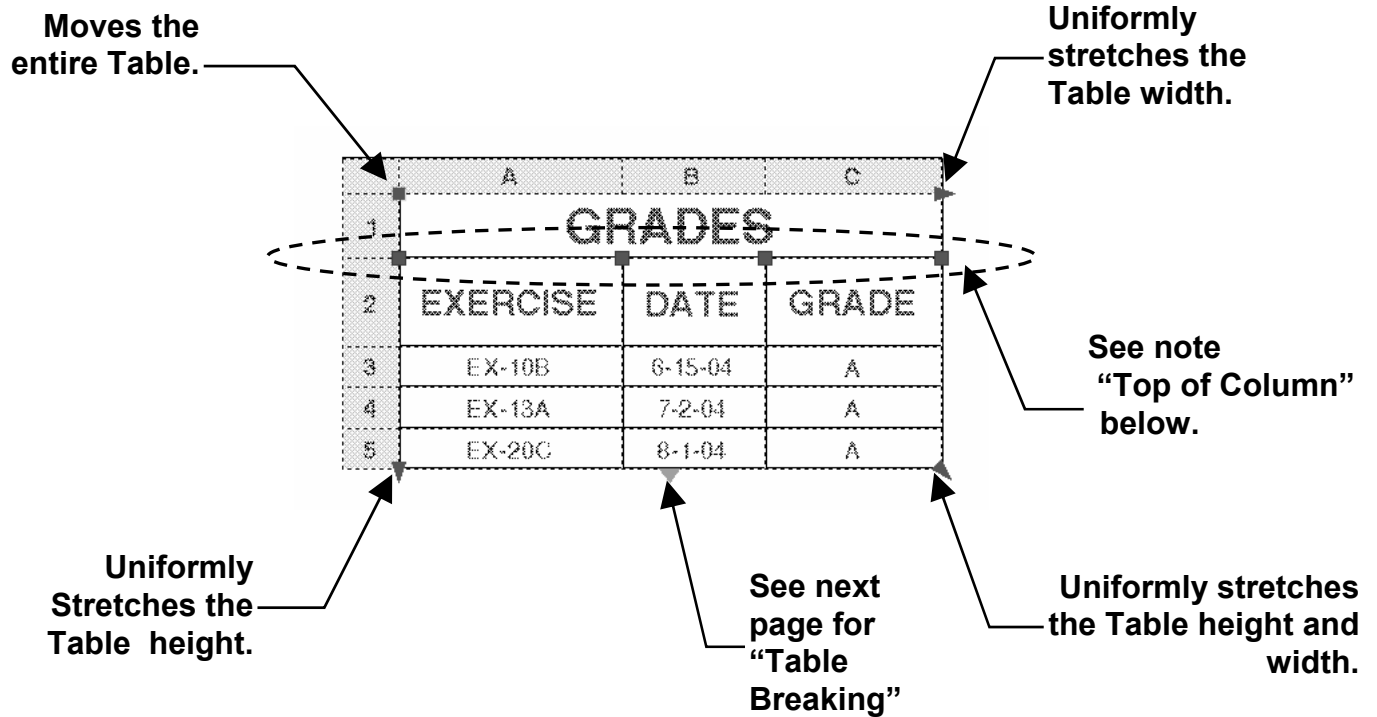
Below the ribbon, a table is shown with 7 rows and 3 columns labeled A, B, and C. The table is currently in a state where the bottom row (row 7) is being edited, as indicated by the presence of small square handles at the bottom of the cells in that row.

	A	B	C
1			
2			
3			
4			
5			
6			
7			

## MODIFY A TABLE USING GRIPS

You may also modify tables using Grips. When editing with Grips, the left edge of the table remains stationary but the right edge can move. The upper left Grip is the Base Point for the table.

To use Grips, click on a table border line. The Grips should appear. Each Grip has a specific duty, shown below. To use a Grip, click on the Grip and it will change to red. Now click and drag it to the desired location.



### Top of Column

There is a Grip located at the top of each column line. These Grips adjust the width of the column to the left of the Grip.

The column will change but the width of the entire Table remains unchanged.

If you hold the CTRL key down while moving a column Grip, the entire Table adjusts at the same time.

#### Drag Grip

GRADES		GRADE
EXERCISE	DATE	
EX-10B	6-15-04	A
EX-13A	7-2-04	A
EX-20C	8-1-04	A

#### Drag Grip with Ctrl key

GRADES		
EXERCISE	DATE	GRADE
EX-10B	6-15-04	A
EX-13A	7-2-04	A
EX-20C	8-1-04	A

## AUTOFILL GRIP

The AutoFill grip allows you to fill the cells automatically by increments of 1 by selecting 1 cell and dragging to the next cell.

**Make sure the cell data format is set correctly. (Refer to 5-13)**

1. Place data in a cell. (**Important:** Data format should be “whole number”. Refer to 5-13)
2. Click on the AutoFill Grip.
3. Drag the cursor down to the desired cells.
4. Cell data advances by 1 unit.

	A	B
1	GRADES	
2	LESSON	DATE DUE
3	1	7/7/2007
4		
5		
6		
7		
8		

	A	B
1	GRADES	
2	LESSON	DATE DUE
3	1	7/7/2007
4	2	
5	3	
6	4	
7	5	
8	6	

If you select **2 cells** AutoFill will follow the incremental advance between the 2 cells. For example, if the date advances by 1 week rather than 1 day.

1. Fill 2 cells. (**Important:** Set data format to “date” Refer to 5-13)
2. Select the AutoFill Grip
3. Drag the cursor down to the desired cells.
4. Cell data advances by 1 week.

	A	B
1	GRADES	
2	LESSON	DATE DUE
3	1	7/7/2007
4	2	7/14/2007
5	3	
6	4	
7	5	
8	6	

	A	B
1	GRADES	
2	LESSON	DATE DUE
3	1	7/7/2007
4	2	7/14/2007
5	3	7/21/2007
6	4	7/28/2007
7	5	8/4/2007
8	6	8/11/2007

# AUTOFILL OPTIONS

You may specify how you want the cells formatted.

1. Left click on the AutoFill Grip.
2. Right click on the AutoFill Grip.
3. Select an Option from the List. (Description of each is shown below.)

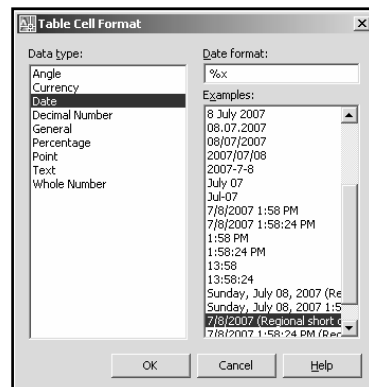
	A	B
1	<b>GRADES</b>	
2	<b>LESSON</b>	<b>DATE DUE</b>
3	1	7/7/2007
4	2	7/14/2007
5	3	
6	4	
7	5	
8	6	

- Fill Series
- Fill Series Without Formatting
- Copy Cells
- Copy Cells Without Formatting
- Fill Formatting Only

- **Fill Series.** Fills the subsequent cells with the data from the selected cell and advances at a rate of 1 unit. The format of the selected cell is maintained.
- **Fill Series Without Formatting.** Same as Fill Series except the formatting is not the same as the selected cell.
- **Copy Cells.** Duplicates the values and the formatting of the selected cells.
- **Copy Cells Without Formatting.** Same as Copy Cells except the formatting is not the same as the selected cell.
- **Fill Formatting Only.** Fills only cell formatting for the selected cells. Cell values are ignored.

## To change the data formatting within a cell.

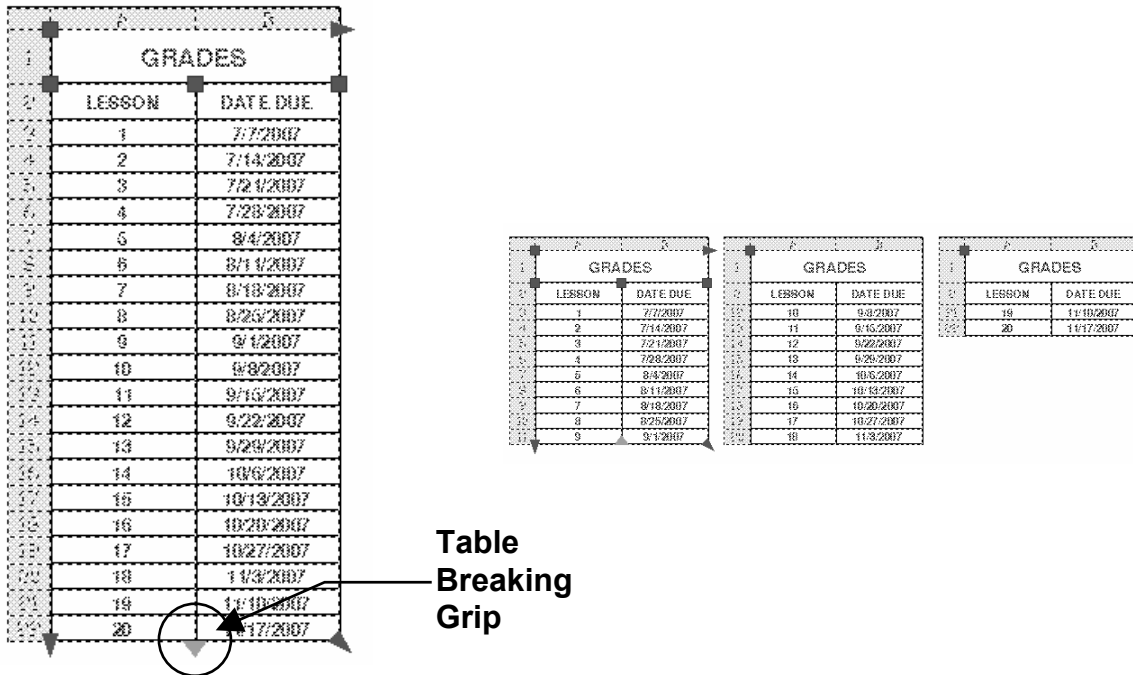
1. Left click inside the cell.
2. Right click and select **Data Format....**
3. Select from the Table Cell Format .



## TABLE BREAKING

A long table can be broken into 2 separate tables using the Table Breaking Grip.

1. Click on the table border line.
2. Click on the Table Breaking Grip.
3. Move the cursor **up** to the cell location for the Table Break and click.



### To make changes to the broken table

1. Right click on the Table and select **Properties**.
2. Scroll down to **Table Breaks**

Table Breaks	
Enabled	Yes
Direction	Right
Repeat to...	Yes
Repeat bo...	No
Manual po...	No
Manual hei...	No
Break height	4.744
Spacing	.990

**Enabled** – Allows Table Breaking or Not

**Direction** – Places the broken table to the left, right or down from the original table.

**Repeat Top Labels** – Repeats the Top labels or not

**Repeat Bottom Labels** – Repeats the Bottom labels if your table has labels on the bottom or not.

**Manual Positions** – Allows you to move the segments independently using the Move Grip on each.

**Manual Heights** – Places a table breaking grip on each segment so each may be additionally broken

**Break Height** – Breaks each segment into equal heights except possibly the last.


**Spacing** – Controls the spacing between segments.

# FIELDS (Not available in LT version)

A **Field** is a string of text that has been set up to display data that it gets from another source. For example, you may create a field that will display the Circumference of a specific Circle within your drawing. If you changed the diameter of that Circle you could “update” the field and it would display the new Circumference.

Fields can be used in many different ways. After you have read through the example below you will understand the steps required to create and update a Field. Then you should experiment with some of the other Field Categories to see if they would be useful to you. Consider adding Fields to a cell within a Table.

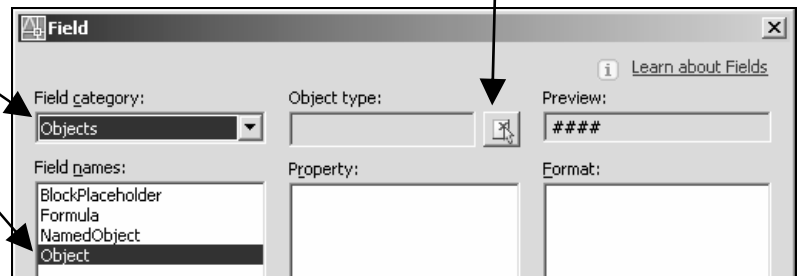
## CREATE A FIELD

1. Draw a 2” Diameter Circle and place it anywhere in the drawing area.
2. Select “Insert tab / Field 

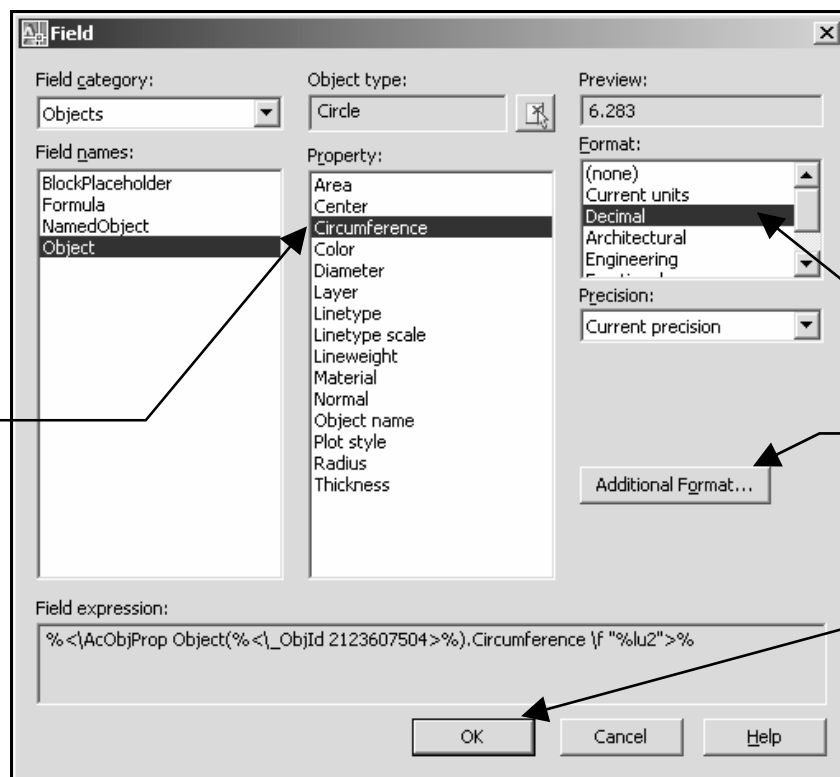
5. Select the Object Type button.

3. Select the Field Category: Objects

4. Select the Field Name: Object



6. Select the Circle that you just drew.



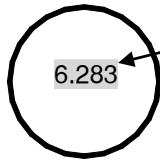
8. Select the Format: Decimal

You may specify Field appearance using **Additional Format**.

7. Select the Property: Circumference

9. Select OK

10. Place the “Field” inside the Circle.



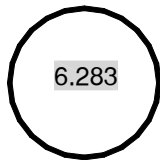
**Note: Watch the command line closely. You may change the “Height” and “Justification” of the text before you place it.**

*Notice that the Field appears with a gray background. This background will not plot. The background can be turned off but I find it helpful to be able to visually distinguish a Field from plain text. If you wish to turn it off use: Options / User Preferences tab. In the Fields section, uncheck the “Display background of Fields” box.*

## UPDATE A FIELD

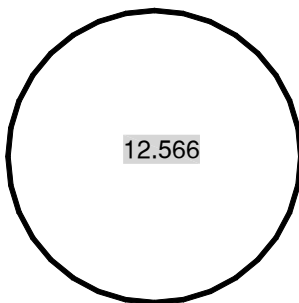
*Now let’s change the diameter of that Circle and see what happens to the Field.*

1. Change the size of the Circle.
  - a. Select the Circle.
  - b. Right click and select **Properties**.
  - c. Change the Diameter to 4.
  - d. Close the Properties Palette.
  - e. Press ESC key to clear the Grips.



*Notice that the Field has not changed yet. In order to see the new Circumference value, you must “Update the Field”.*

2. Type **Regen <enter>**.



*The Field updated to the new Circumference value.*

**Note: The Field will update automatically each time you Save, Plot or Regenerate the drawing.**

# Editing FIELDS

Editing a Field is very easy. The process is basically the same as creating a Field.

## EDIT A FIELD

1. Double click the **Field text**. *The Multiline Text Editor will open.*
  2. Right click on the **Field text**.
  3. Select **Edit Field** from the menu.
  4. Make the changes.
  5. Select **OK**.
  6. You may also add more text to the Field text but you may not change the text within the Field.  
Example: Add the words "Circle Circumference" under the Field text on the previous pages.
  7. Select **OK** to exit the Multiline Text Editor.
- 

## ADD A FIELD TO A TABLE CELL

1. Select the cell.
  2. Right click.
  3. Select "**Insert / Field**" from the menu.
  4. Create a Field as described on page 5-15.
- 

## Questions about Fields

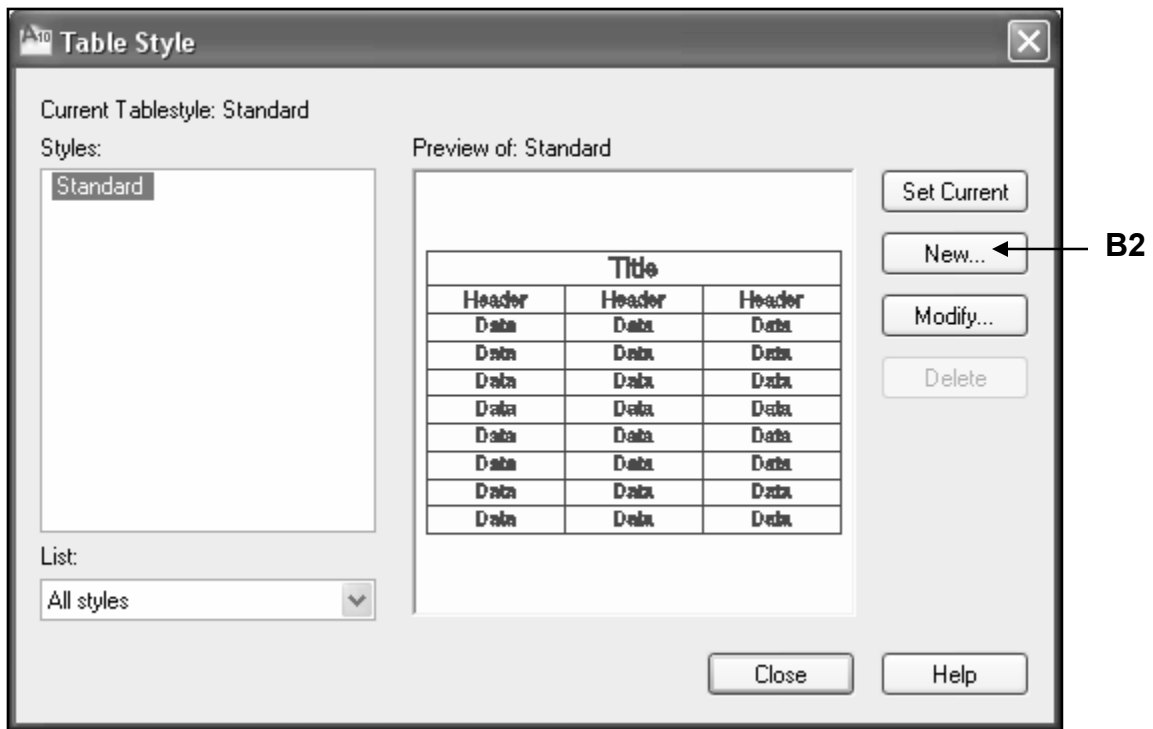
### 1. *What happens when you Explode a Field?*

The Field will convert to normal text and will no longer update.

# EXERCISE 5A

## CREATE A NEW TABLE STYLE

- A. Open **My Decimal Setup**.
- B. Create a New Table.
  1. Type **TS** <enter> (Refer to page 5-2)
  2. Select the **New** button.



3. Enter new table style "name" and start with "Standard"

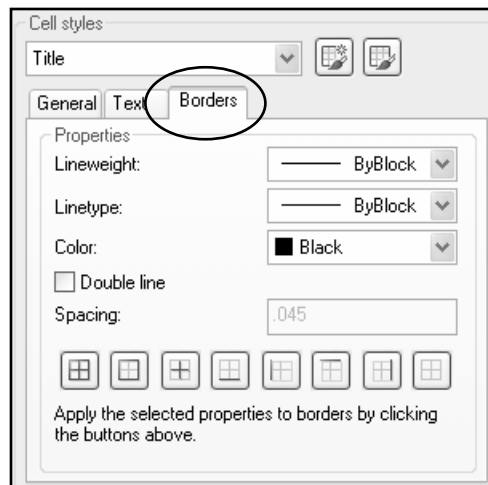
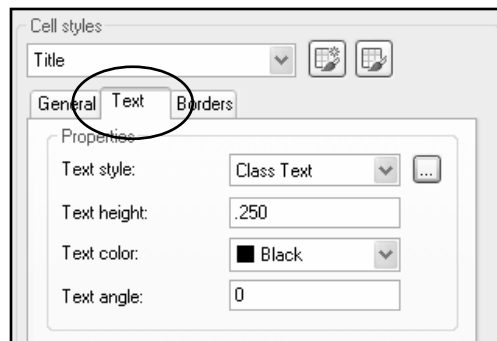
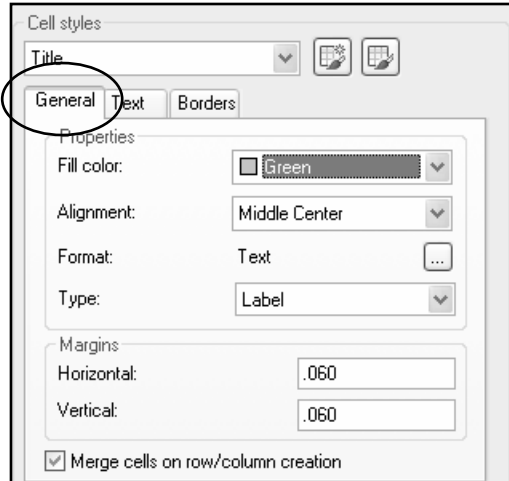


4. Select **Continue** button.

Continued on the next page...

# EXERCISE 5A continued

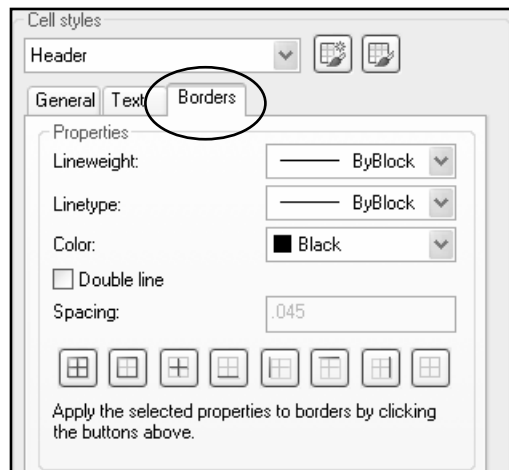
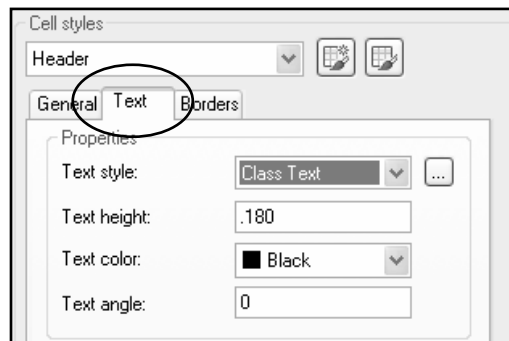
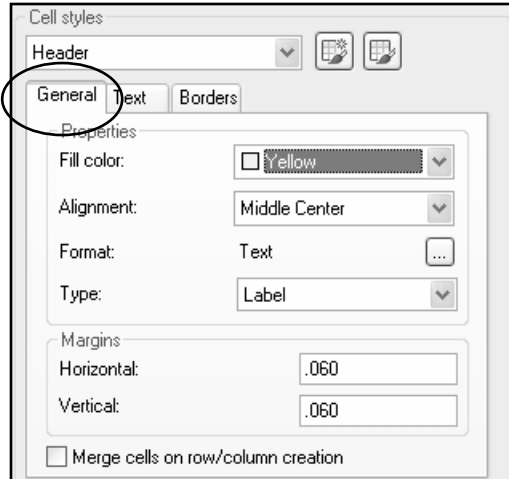
C. Enter “Title” Cell Type settings.



Continued on the next page...

# EXERCISE 5A continued

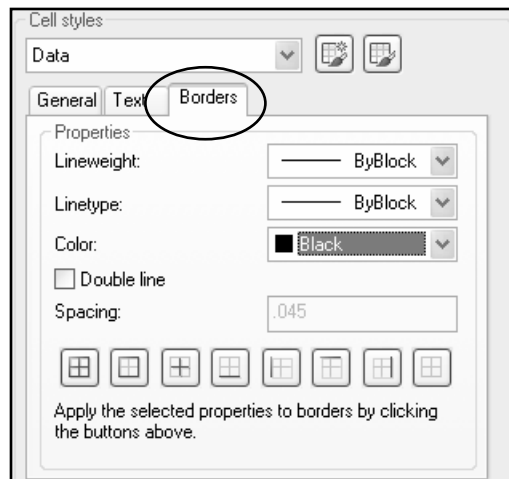
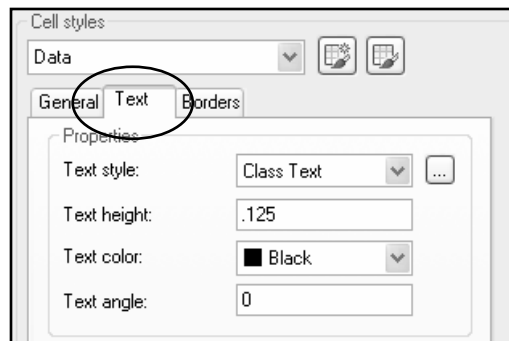
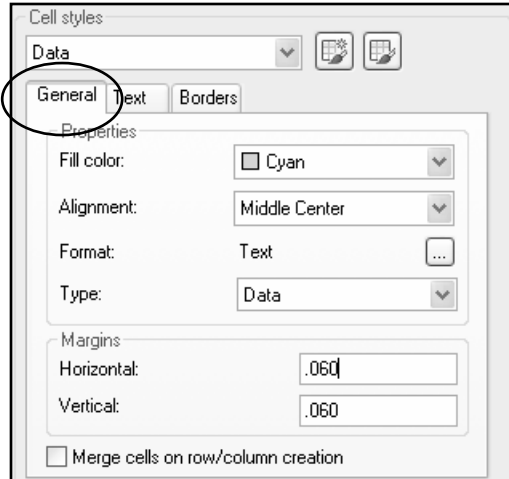
C. Enter “Header” Cell Type settings.



Continued on the next page...

# EXERCISE 5A continued

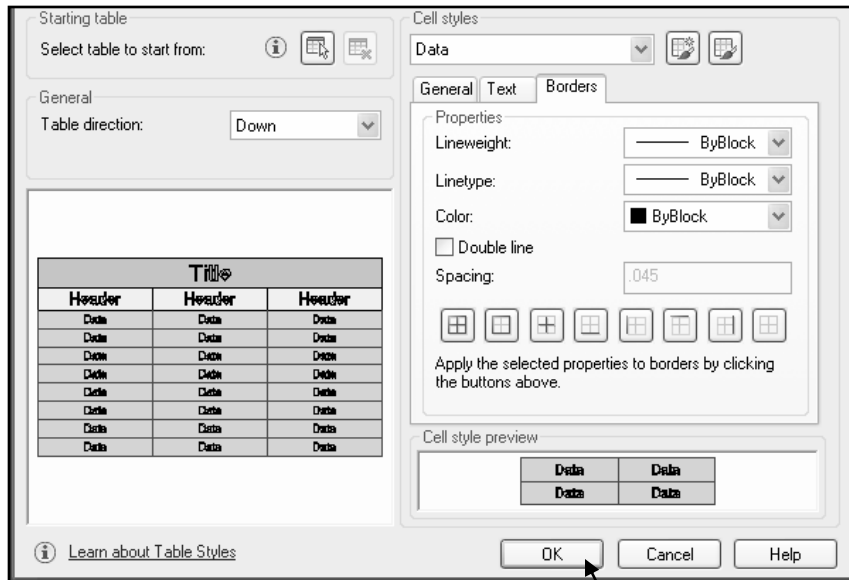
C. Enter “Data” Cell Type settings.



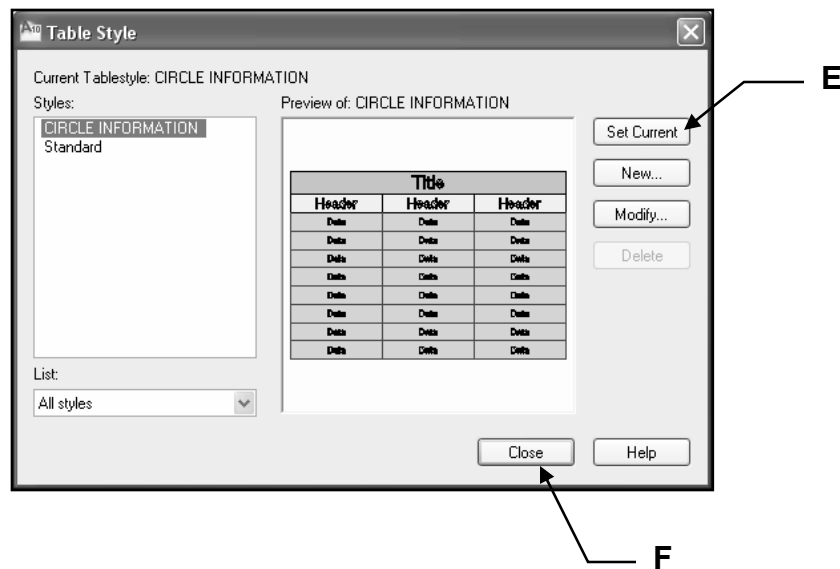
Continued on the next page...

# EXERCISE 5A continued

D. Select the **OK** button.



E. Set the new table style current.



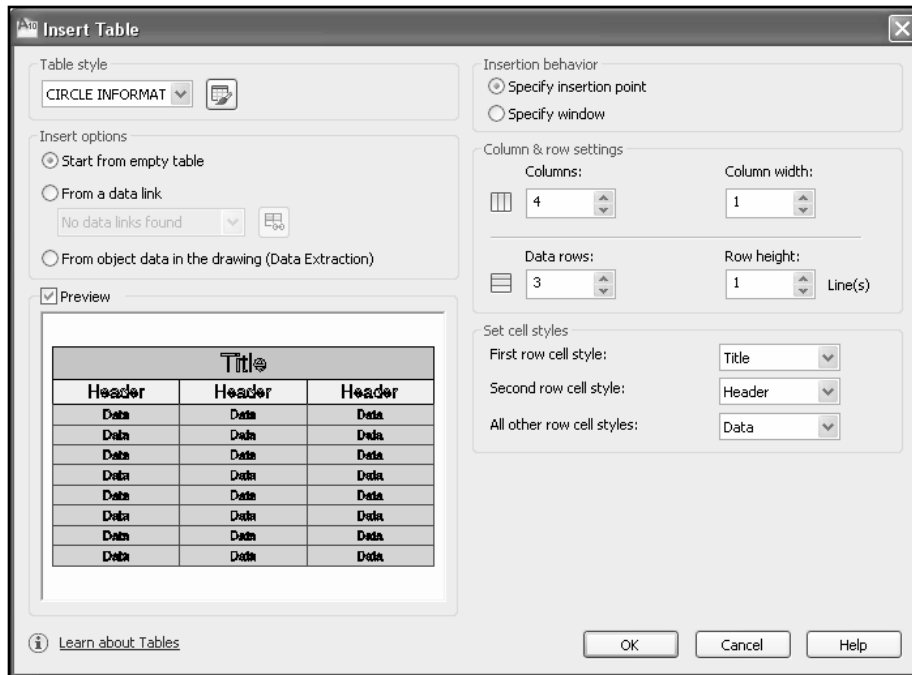
F. Select **Close** button.

G. Save as: **EX-5A**

# EXERCISE 5B

## INSERT A TABLE

1. Open **EX-5A**
2. Insert the Table shown below using the following Column and Width settings.



3. Enter the **Title** and **Header** text.

CIRCLE INFORMATION			
ITEM	DIA	CIR	AREA

4. Save as: **EX-5B**

# EXERCISE 5C

## MODIFY AN EXISTING TABLE

1. Open **EX-5B**
2. Modify the **Column Header** “Cir” to “Circumference”.
  - a. First change the Cell width to 2.750
  - b. Edit the text
3. Add the data for column “ITEM” (Try “AutoFill Grip” described on page 5-12)
4. Add the diagonal guidelines if desired.

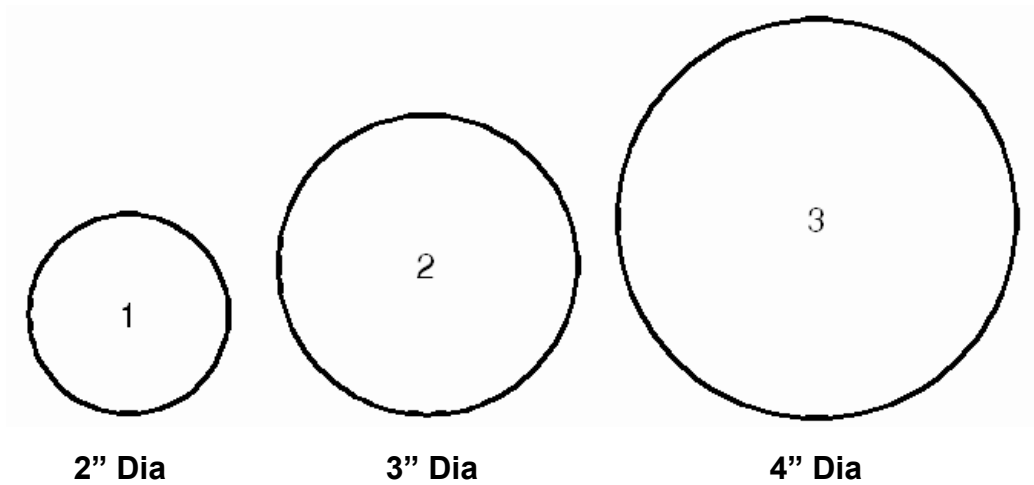
CIRCLE INFORMATION			
ITEM	DIA	CIRCUMFERENCE	AREA
1			
2			
3			

5. Save as: **EX-5C**

# EXERCISE 5D

## ADD FIELDS TO AN EXISTING TABLE

1. Open **EX-5C**
2. Draw 3 Circles and place their item number (.25 Ht) in the middle, as shown below.



3. Add the FIELDS for **DIA**, **CIRCUMFERENCE** and **AREA** in the appropriate Data Cells within the "Circle Information" Table shown below.

Text Ht = .125    Justification = Middle Center

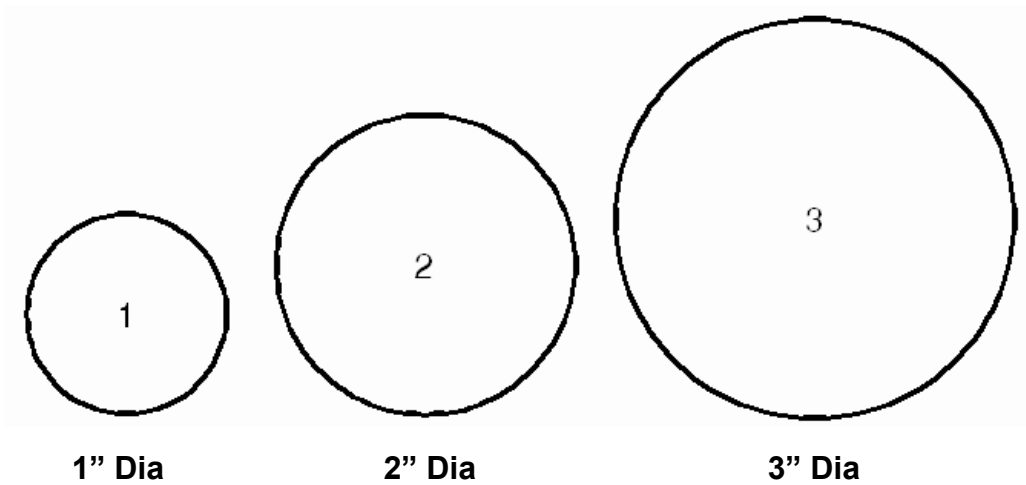
CIRCLE INFORMATION			
ITEM	DIA	CIRCUMFERENCE	AREA
1	2.000	6.283	3.142
2	3.000	9.425	7.069
3	4.000	12.566	12.566

4. Save as: **EX-5D**

# EXERCISE 5E

## UPDATE A FIELD

1. Open **EX-5D**
2. Modify the Diameters of the 3 Circles using **Properties**.



3. Update the Fields: Type: **Regen** <enter> (Refer to page 5-16)

CIRCLE INFORMATION			
ITEM	DIA	CIRCUMFERENCE	AREA
1	1.000	3.142	0.785
2	2.000	6.283	3.142
3	3.000	9.425	7.069

4. Save as: **EX-5E**

# EXERCISE 5F

## USING AUTOFILL GRIP

1. Open **EX-5E**

You are using 5E because it has the “Circle Information” table style saved in it.

2. Draw the table shown below using table style “Circle Informtion”.
3. Column width = 1.50
4. Try **AutoFill Grip** to fill the cells. It is really not difficult and may save you time.  
(Refer to page 5-12)

GRADES	
LESSON 1	DUE DATE
1	7/7/2007
2	7/14/2007
3	7/21/2007
4	7/28/2007
5	8/4/2007
6	8/11/2007
7	8/18/2007
8	8/25/2007
9	9/1/2007
10	9/8/2007
11	9/15/2007
12	9/22/2007

5. Save as: **EX-5F**

# EXERCISE 5G

## BREAKING A TABLE

1. Open **EX-5F**
2. Break the table as shown below. (Refer to page 5-14)

GRADES	
LESSON 1	DUE DATE
1	7/7/2007
2	7/14/2007
3	7/21/2007
4	7/28/2007
5	8/4/2007

6	8/11/2007
7	8/18/2007
8	8/25/2007
9	9/1/2007
10	9/8/2007
11	9/15/2007
12	9/22/2007

3. Now change the broken table to “**Down**”.

GRADES	
LESSON 1	DUE DATE
1	7/7/2007
2	7/14/2007
3	7/21/2007
4	7/28/2007
5	8/4/2007

6	8/11/2007
7	8/18/2007
8	8/25/2007
9	9/1/2007
10	9/8/2007
11	9/15/2007
12	9/22/2007

4. Save as: **EX-5G**