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Computer Applications: Using Electronic Spreadsheets

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ABSTRACT
                 This instructional unit is intended to assist
teachers in helping students learn to use electronic spreadsheets.
The 11 learning activities included, all of which are designed for
use in conjunction with Multiplan Spreadsheet Software, are arranged
in order of increasing difficulty. An effort has been made to include
problems applicable to each of the following areas: basic business,
secretarial, administrative support, information processing,
marketing, and accounting. Topics covered in the individual lessons
include operating a spreadsheet program, formatting an electronic
spreadsheet, entering and saving data, creating a new electronic
spreadsheet from an existing one, rearranging and replacing data,
changing data on an electronic spreadsheet and understanding the
effect of new "what if" projections, printing an electronic
spreadsheet, entering formulas, copying data, printing tables, making
interest projections, and organizing and creating a new spreadsheet
by integrating all of the aforementioned concepts. Each lesson
includes a lesson title, objectives, list of needed teaching aids and
references, teaching outline, outcomes, learning activity,
instructions, and reference data necessary to complete the activity.
(MN)

COMPUTER APPLICATIONS:

USING

ELECTRONIC

SPREADSHEETS

COMPUTER APPLICATIONS
Spreadsheet

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1985

One of the pieces of software that has revolutionized the business world is known as the "electronic spreadsheet." This type of software first came on the market in 1978. In the six years that electronic spreadsheets have been avail- able, they have given accountants and all business profess- ionals the capability of using the computer to improve decision-making. In this day and age, it is a prerequisite for all accounting and business professionals to have a knowledge of "electronic spreadsheets."

The first electronic spreadsheet was VisiCalc from VisiCorp. Other popular spreadsheet packages are MultiPlan and SuperCalc.

The second generation of electronic spreadsheet packages found the integration of graphics and data base management with the electronic spreadsheet. Examples of these integrated software packages are Lotus 1-2-3 and SuperCalc3.

The third generation of integrated packages includes not only graphics, data base management, and spreadsheet capabili- ties, but also word processing. Examples of these include Symphony, an upgrade of Lotus 1-2-3, and Framework from Ashton- Tate Corporation.

What is an electronic spreadsheet, and why has it become so popular in the business world? Effectively, the electronic spreadsheet has replaced the use of the 10-column worksheet, pencil, and 10-key adding machine. Any type of financial

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information that was previously prepared on columnar working paper can now be prepared with the use of the electronic spreadsheet. The electronic spreadsheet not only eliminates tedious, manual calculations, but the real beauty lies in its ability to perform "what-if" computations. In today's highly competitive business world, in order to make good business decisions, professionals need to know not only the current status but also what will happen if certain variables change. In the current employment marketplace, the individual who has electronic spreadsheet knowledge is going to have an edge over those who do not.

This unit has been developed to assist the teacher in the instruction of electronic spreadsheets. It is assumed that the teacher is acquainted with one of the more popular spreadsheet packages that are available. Since the problems progress from very simple to complex, the unit can be taught as is, or if the students are already familiar with electronic spreadsheets, the teacher may want to select individual problems to integrate into his/her classes. We have attempted to include problems which are applicable to each of the six programs--Basic Business, Secretarial, Administrative Support, Information Processing, Marketing, and Accounting. We also have attempted to keep the instructions as generic as possible so that the teacher can adapt the problems to the specific electronic spreadsheet package that he/she is using.

HELPFUL HINTS

To help you teach the unit on the electronic spreadsheet or to use one or several of the learning activities, some hints have been listed to aid you in each lesson.

It will be advantageous for you to prepare the following handouts for the students as a reference guide: Functions, Commands, Special Key Uses, and Mathematical Operations. This will enable a student to have a copy as a quick reference for editing or developing a spreadsheet. Examples of handouts used for the MULTIPLAN SPREADSHEET SOFTWARE PROGRAM are attached to Lesson 1. These should be edited for your software program and distributed in Lesson 1.

In the instruction sheets or learning activities, a notation is given as R2C1. This particular notation indicates the cell located at Row 2 Column 1. Whenever R and C are used with a number, it indicates rows and columns. In Lotus 1-2-3 and VisiCalc, R2C1 would be indicated as cell location A2.

The length of time will vary from 3 to 4 weeks depending on the level of the students, the amount of previous computer experience, and the length of time in one class period.

SUGGESTIONS FOR USES OF EACH LEARNING ACTIVITY IN THE DIFFERENT BUSINESS AREAS.

Basic Business	Secretarial	Administrative Support	Information Processing	Marketing	Accounting
LAP 1	LAP 1	LAP 1	LAP 1	LAP 1	LAP 1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5				5	5
6	6				6
7				7	7
8	8	8	8		
9				9	9
10					10

Some spreadsheet software programs available on the market are:

MULTIPLAN
A.P.P.L.E. SPREADSHEET
LOTUS 1-2-3
VISICALC
SUPERCALC
APPLE WORKS
SYMPHONY
MAGIC CALC
PFS: PLAN
BASIC CALC

BEHAVIORAL OBJECTIVES FOR SPREADSHEET UNIT

The student will be able:

1. To state the advantages and disadvantages of using an electronic spreadsheet.

2. To introduce the operational mechanics of the spreadsheet program.

3. To format an electronic spreadsheet.

4. To enter data on an electronic spreadsheet.

5. To enter formulas on an electronic spreadsheet.

6. To utilize the COPY command.

7. To utilize the SAVE command.

8. To print a copy of the electronic spreadsheet.

9. To delete and replace data on an electronic spreadsheet.

10. To rearrange data using an electronic spreadsheet.

11. To print a copy of the electronic spreadsheet.

12. To create a new spreadsheet from an existing spreadsheet.

13. To insert rows in an existing spreadsheet.

14 To replace data on an electronic spreadsheet.

15. To underline.

16. To change data on a spreadsheet and understand the effect of the new data in "what if" projections.

17. To develop an IF function.

13. To utilize a WINDOW command.

19. To organize and create an electronic spreadsheet.

20. To integrate all previous objectives.

LESSON TITLE: Operation of Spreadsheet Program

OBJECTIVES: To state the advantages and disadvantages of
                 using an electronic spreadsheet.

                 To introduce the operational mechanics of the
                 spreadsheet program.

TEACHING AIDS AND REFERENCES:

                 Handouts: Reference Guide Handouts
                                Spreadsheet Functions
                                Spreadsheet Commands
                                Special Key Uses
                                Mathematical Operations

TEACHING OUTLINE:

1.   Initialize data disk and boot up spreadsheet program (Use
     Reference Manual).

2.   From a blank spreadsheet illustrate to the student:

     Cursor movement — GOTO Command
     Error correction
     Command line location
     Status area location
     Rows and columns identification
     Scrolling of the worksheet
     Cancelling a command -- Break key or Ctrl-C
     Terminology such as:
        coordinates
        worksheet name
        storage space available

3.   Distribute handouts. Students should use these as a
     reference guide in completing the learning activities.
     Each time a new function, command, or formula is intro-
     duced in the learning activities, refer to these handouts.

MATERIALS NEEDED/OUTCOMES:

1.   Reference Manual for spreadsheet program.

2.   Tutorial Manual (if available).

MULTIPLAN COMMANDS

1. <u>Alpha</u>   enter alphabetic or numeric text
2. <u>Blank</u>   acts as an eraser
3. <u>Copy</u>   Right, Down - used when copying one command in
        consecutive order
        Fron - copies from one location to another (blank
        cells between), copies more than one command
        or cell.
4. <u>Delete</u>   Row, Column - eliminates entire rows or columns
                      moves everything up or left
5. <u>Edit</u>   use edit keys - Char left   C/o word
               Char right   C/p word
6. <u>Format</u>   Cells - one or more cells i.e. R2C6 or R3:6C2
        Default cells - all cells
        Default width - all columns
        Options - formulas in cells or status line
               changes width from 80 to 132 characters
               1 = 132   8 = 80
        Width - one or more columns
7. <u>GoTo</u>   scrolls spreadsheet to desired location faster
8. <u>Help</u>   gives information on functions and commands
9. <u>Insert</u>   Row, Column - adds blank rows or columns
                      moves everything down or right
10. <u>Lock</u>   Cells - locks selected cells
        Formulas - locks all cells that contain text or
        formulas
11. <u>Move</u>   Row, Column - moves entire rows or columns
                    move depends on direction moving
        Ex: move 1 to before 3:   move 3 to before 2:

original	moved rows	original	moved rows
1	1	1	1
2	2	2	2
3	3	3	3

12. <u>Name</u>   names a cell or group of cells
        displays names by using name command and arrow
        keys
        changes names by edit keys
        deletes name by referring to no area
13. <u>Options</u> Recalc, no - turns off calculation. 1 recalculates
        Mute, yes - turns off bell sound when error is
        made
        Iteration - recalculates worksheets with circular
        references
14. <u>Print</u>   Printer - begins printer
        File - stores on a disk file
        Margins - sets margins
        Options - specifies part of worksheet to print
15. <u>Quit</u>   ends Multiplan
16. <u>Sort</u>   sorts from least to greatest
        can sort numbers, text, logical values, blank
        cells

MULTIPLAN COMMANDS (cont.)

17. <u>Transfer</u> Load - loads a file from a disk
            Save - saves a file from a disk
            Clear - clears screen, sets up to restart
            Delete - erases a file from a disk
            Options - changes binary format
            Rename - renames a file

18. <u>Value</u>   to enter a formula

19. <u>Window</u>   Split - new window horizontally or vertically
                or titles
            Border - adds or removes border around window
            Close - erases window
            Link - scrolls two windows together
                    Select key moves cell pointer from
                    window to window
20. <u>External</u> Copy - copies from inactive to active worksheet
                    external link to supporting sheet
            List - displays list of supporting and dependent
                    worksheets
            Use - assigns a substitute name for a specific
                    sheet

MULTIPLAN FUNCTIONS

USED WITH VALUE COMMAND
N = ONE ENTRY ALLOWED   LIST = MORE THAN ONE ENTRY
T = TEXT OR FORMULA THAT YIELDS TEXT

1. AND(LIST): if logical values are true, returns true,
        otherwise false. i.e. If (AND(SUM(homework)>82,
        final>50)), credit, "not qualified")
2. AVERAGE(LIST): Averages
3. COLUMN(): Returns number of column of formula
4. COUNT(LIST): adds a list only if it contains number
                    values
5. DOLLAR(N): similiar to $ format code
6. IF(LOGICAL, THEN VALUE, ELSE VALUE): returns then value
        if logic is true otherwise else
7. INT(N): returns integers, truncates fractions
8. LEN(T): returns number of characters in text
9. MAX(LIST): returns largest number value from list
10. MIN(LIST): returns smallest number value from list
11. OR(LIST): returns logical value true if any value in
        list is true, otherwise false
12. ROUND(N, DIGITS): rounds N to number of decimals speci-
        fied by digits
13. ROW(): returns number of rows of formula
14. SUM(LIST): adds list i.e. (1 + rate)*SUM(deposits
        January)

MATHEMATICAL OPERATIONS

*   MULTIPLICATION

/   DIVISION

%   PERCENT - Written after the value and has the same meaning as /100, divide by 100.

+   ADD

-     SUBTRACTION

<   LESS THAN

>   GREATER THAN

=   EQUAL TO

<>   NOT EQUAL TO

SPECIAL KEYS

NEXT SCREEN /ARROW	Pressing next screen and then the appropriate key, moves the cell pointer to the next window-sized page of the worksheet.
FIND	(Move to, or indicate next unlocked cell.) Moves the cell pointer to the next cell that contains data.
SELECT	(Move to next window). Moves the cell pointer to the next window when the Window Split command is in effect.
HELP	Displays help information on the screen.
REMOVE	In command mode removes a proposed response.
@	Changes relative references to absolute references.
!	Recalculates the entire worksheet. If you include ! in a formula, Multiplan replaces the formula with its results.
CTRL/Q	Home. Moves the cells pointer to R1C1.
CTRL/Z	End. Moves the cell pointer to the last row down and right that is formatted.
CTRL/C	Cancel. Halts command execution.

LESSON TITLE: Learning Activity 1

OBJECTIVES: To format an electronic spreadsheet.
                To enter data on an electronic spreadsheet.
                To enter formulas on an electronic spreadsheet.
                To utilize the COPY command.
                To utilize the SAVE command.
                To print a copy of the electronic spreadsheet.

TEACHING AIDS AND REFERENCES:

                Handouts: Learning Activity 1--Chicago Cubs
                Key for Learning Activity (LA) 1

TEACHING OUTLINE:

1. Format the spreadsheet.

2. Key-enter the column headings.

3. Formula for PCT. column is: H/AB
    Key-enter and copy formulas using the COPY command.

4. Key-enter the data on the spreadsheet.

5. For TEAM TOTALS use the SUM function.
    Copy formula across.

6. Save the spreadsheet and name it "Chicago Cubs" on the
    disk. Use the SAVE command.

7. Print the data.

8. Print the formulas.

    HINTS:

    Be sure to note the data is single spaced.

MATERIALS NEEDED/OUTCOMES:

1. Learning Activity 1.

2. Reference Manual for Spreadsheet Program.

CHICAGO CUBS

Individual Batting (25 or more at bats)	AB	R	H	HR	RBI	PCT.
Moreland	29	2	10	1	7	
Matthews	26	5	7	2	5	
Durham	25	2	6	0	1	
Dernier	38	3	9	0	1	
Cey	31	4	7	2	5	
J Davis	32	3	7	2	3	
Sandberg	36	6	6	0	0	

TEAM TOTALS

DIRECTIONS: Format the first column with a width of 25 and the 2nd through 7th columns for 6. Format columns 2 - 6 for integers and right alignment and column 7 for right alignment and fixed decimal to 3 places. Enter the following data into the first 6 columns of your worksheet. Figure formulas for the pct. and the team totals.

Single space the data.

KEY FOR LA 1

CHICAGO CUBS

Individual Batting	AB	R	H	HR	RBI	PCT.
(25 or more at bats)						
Moreland	29	2	10	1	7	0.345
Matthews	26	5	7	2	5	0.269
J Davis	32	3	7	2	3	0.219
Durham	25	2	6	0	1	0.240
Dernier	38	3	9	0	1	0.237
Cey	31	4	7	2	5	0.226
Sandberg	36	6	6	0	0	0.167
TEAM TOTALS	217	25	52	7	22	0.240

LESSON TITLE: Learning Activity 2

OBJECTIVES: To enter data on an electronic spreadsheet.
                   To utilize the SAVE command.
                   To delete and replace data on an electronic
                       spreadsheet.
                   To rearrange data using an electronic
                       spreadsheet.
                   To print a copy of the electronic spread-
                       sheet.

TEACHING AIDS AND REFERENCES:

                   Handouts: Learning Activity 2--Changes for
                       Chicago Cubs
                   Key for Learning Activity (LA) 2

TEACHING OUTLINE:

1. Load "Chicago Cubs" spreadsheet.

2. Replace the old data.

3. Key-enter the additional data on the spreadsheet.

4. Delete one line using the DELETE command.

5. Rearrange the data in descending order using the SORT
    command.

6. Save the spreadsheet.

7. Print the data only. Do not print the formulas as they
    are the same as Learning Activity 1.

    HINTS:

    Use the same spreadsheet created in LA 1 and make the
    changes on it. Do not create a new spreadsheet.

    It is easier to replace the data if you replace line for
    line on the screen instead of on the handout.

MATERIALS NEEDED/OUTCOMES:

1. Learning Activity 2.

2. Reference Manual for Spreadsheet Program.

CHICAGO CUBS

Individual Batting (25 or more at bats)	AB	R	H	HR	RBI	PCT.
Moreland	51	3	16	1	12	
Matthews	43	8	12	2	6	
J Davis	43	3	10	2	4	
Durham	44	4	10	2	4	
Dernier	53	6	12	0	1	
Dunston	42	3	9	0	2	

TEAM TOTALS

DIRECTIONS: Enter the following data to replace the data you already have. Make sure players are in the correct order-- descending from highest pct. to lowest. Your formulas should correctly refigure the pct. and the team totals.

CHICAGO CUBS

Individual Batting (25 or more at bats)	AB	R	H	RBI	PCT.
Moreland	51	3	16	12	0.314
Matthews	43	8	12	6	0.279
J Davis	43	3	10	4	0.233
Durham	44	4	10	4	0.227
Dernier	53	6	12	1	0.226
Dunston	42	3	9	2	0.214
TEAM TOTALS	276	27	69	29	0.250

LESSON TITLE: Learning Activity 3

OBJECTIVES: To create a new spreadsheet from an existing
                  spreadsheet.
                  To insert rows in an existing spreadsheet.
                  To enter data on an electronic spreadsheet.
                  To utilize the COPY command.
                  To utilize the SAVE command.
                  To replace data on an electronic spreadsheet.
                  To print a copy of the electronic spreadsheet.

TEACHING AIDS AND REFERENCES:

                  Handouts: Learning Activity 3--National League
                  Key for Learning Activity (LA) 3

TEACHING OUTLINE:

1.   Load Chicago Cub spreadsheet.

2.   Insert six additional rows to accommodate new data.   HINT:
     Be sure to insert the rows in the middle of the table so
     the SUM fun_.ion will adjust itself automatically.   If you
     insert the rows on the blank l:ne (between the last item
     and the TEAM TOTALS), the SUM .unction will not adjust
     automatically.   You will have to redo that formula.

3.   Copy formula in PCT. column down for new rows inserted.

4.   Adjust the width of column 1.

5.   Center "National League" and erase "Chicago Cubs" using the
     BLANK Command.

6.   Key-enter the new data on the spreadsheet.

7.   Save the spreadsheet under the new name "National League?"

8.   Print the data only.   Do not print the formulas as they are
     the same as Learning Activity 2.

     HINTS:

     Note that the only format change is the width of column 1.
     All other column widths are the same as the last learning
     activity.

MATERIALS NEEDED/OUTCOMES:

1.   Learning Activity 3.

2.   Reference Manual for Spreadsheet Program.

DS ————————————————→ NATIONAL LEAGUE

DS Club Batting	AB	R	H	HR	RBI	PCT.
Atlanta	313	44	86	10	42	
San Diego	305	40	83	8	37	
Houston	351	39	95	1	34	
St. Louis	297	36	78	3	30	
Montreal	301	30	79	4	29	
SS Cincinnati	322	31	77	3	29	
New York	303	29	70	7	28	
Los Angeles	361	32	83	8	30	
Chicago	283	30	64	7	27	
Pittsburgh	285	31	63	1	28	
San Francisco	287	25	61	3	24	
Philadelphia	281	18	54	1	17	

DS ———→ TOTALS

DIRECTIONS: Format the width of columns 1 to 15 and columns
2 to 7 for 6 spaces. Format columns 2 to 6 for integers and
right alignment and column 7 for fixed decimals to 3 places.
Enter in the following data. Center the heading NATIONAL
LEAGUE in columns 2, 3, and 4. Type whatever you can in
column 2, extend rest to column 3, and the remainder in
column 4.

Don't forget to copy percentage formulas down for blank rows
inserted.

DS means double space
SS means single space

NATIONAL LEAGUE

Club Batting	AB	R	H	HR	RBI	PCT.
Atlanta	313	44	86	10	42	0.275
San Diego	305	40	83	8	37	0.272
Houston	351	39	95	1	34	0.271
St. Louis	297	36	78	3	30	0.263
Montreal	301	30	79	4	29	0.262
Cincinnati	322	31	77	3	29	0.239
New York	303	29	70	7	28	0.231
Los Angeles	361	32	83	8	30	0.230
Chicago	283	30	64	7	27	0.226
Pittsburgh	285	31	63	1	28	0.221
San Francisco	287	25	61	3	24	0.213
Philadelphia	281	18	54	1	17	0.192
TEAM TOTAL	3689	385	893	56	355	0.242

LESSON TITLE: Learning Activity 4

OBJECTIVES: To enter data on an electronic spreadsheet.
                To rearrange data using an electronic spread-
                sheet.
                To replace data on an electronic spreadsheet.
                To utilize the SAVE command.
                To print a copy of the electronic spreadsheet.

TEACHING AIDS AND REFERENCES:

                Handouts: Learning Activity 4--Changes for
                            National League
                Key for Learning Activity (LA) 4

TEACHING OUTLINE:

1. Load National League spreadsheet.

2. Key-enter the new data on the spreadsheet.

3. Rearrange the data in descending order using the SORT
    command.

4. Save the spreadsheet.

5. Print the data only. Do not print the formulas as they
    are the same as Learning Activity 3.

    HINTS:

    It is easier to replace the data if you replace line for
    line on the screen rather than on the handout.

MATERIALS NEEDED RATHER THAN OUTCOMES:

1. Learning Activity 4.

2. Reference Manual for Spreadsheet Program.

NATIONAL LEAGUE

Club Batting	AB	R	H	HR	RBI	PCT.
Montreal	522	61	142	9	58	
Houston	582	69	154	5	61	
St. Louis	523	72	137	5	61	
Philadelphia	505	57	125	11	53	
Atlanta	539	60	130	12	56	
San Diego	525	57	126	12	54	
New York	506	58	121	12	54	
Chicago	487	54	114	13	49	
Pittsburgh	482	41	109	2	38	
Los Angeles	595	53	132	17	51	
Cincinnati	540	56	119	8	50	
San Francisco	505	46	106	7	42	
TOTALS						

DIRECTIONS: Enter the following data and make sure the clubs
are in the correct descending order--use the SORT statement.
Your formulas should correctly refigure the pct. and the
totals.

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NATIONAL LEAGUE

Club Batting	AB	R	H	HR	RBI	PCT.
Montreal	522	61	142	9	58	0.272
Houston	582	69	154	5	61	0.265
St. Louis	523	72	137	5	61	0.262
Philadelphia	505	57	125	11	53	0.248
Atlanta	539	60	130	12	56	0.241
San Diego	525	57	126	12	54	0.240
New York	506	58	121	12	54	0.239
Chicago	487	54	114	13	49	0.234
Pittsburgh	482	41	109	2	38	0.226
Los Angeles	595	53	132	17	51	0.222
Cincinnati	540	56	119	8	50	0.220
San Francisco	505	46	106	7	42	0.210
TEAM TOTAL	6311	684	1515	113	627	0.240

LESSON TITLE: Learning Activity 5

OBJECTIVES: To format an electronic spreadsheet.
                   To enter data on an electronic spreadsheet.
                   To enter formulas on an electronic spread-
                      sheet.
                   To utilize the COPY command.
                   To underline.
                   To utilize the SAVE command.
                   To print a copy of the electronic spread-
                      sheet.
                   To change data on a spreadsheet and under-
                      stand the effect of the new data in
                      "what if" projections.

TEACHING AIDS AND REFERENCES:

     Handouts: Learning Activity 5--Income Statement
     Key for Learning Activity (LA) 5 and 5A

TEACHING OUTLINE:

1. Load a blank spreadsheet. (Do not use the two previous
    spreadsheets.)

2. Format the spreadsheet. It would be easier to format an
    entire block instead of column by column or row by row.

3. Key-enter the data.

4. Key-enter the formulas. Use a SUM function for TOTAL
    EXPENSES.

5. Save the spreadsheet.

6. Print the formulas and spreadsheet.

    HINTS:

    Be sure to note the data is single spaced.

    To make the underline, use the shift of the hyphen key.
    COPY across.

    The pitch on the printer could be reduced to illustrate a
    condensed typeset if your software package and computer
    has that capability.

MATERIALS NEEDED/OUTCOMES:

1. Learning Activity 5.

2. Reference Manual for Spreadsheet Program.

INCOME STATEMENT PROJECT

Your task is to prepare an income statement using the information given below.

You will need 25 rows and 4 columns.

Widen column 1 to 30 spaces.

Format columns 2 to 4 in $.

Enter the following information: (Make sure your information is lined up and in the proper columns.)

	C1	C2	C3	C4
	INCOME STATEMENT			
R1				
R2				
R3	REVENUE:			
R4	SALES		9260.00	
R5	LESS: SALES RETURNS	960.00		
R6	SALES DISCOUNTS	37.00		
R7				
R8	NET SALES			
R9	COST OF GOODS SOLD			5180.00
R10				
R11	GROSS PROFIT ON SALES			
R12	OPERATING EXPENSES:			
R13	CASH SHORT & OVER		8.00	
R14	DELIVERY EXPENSE		65.00	
R15	INSURANCE EXPENSE		30.00	
R16	MISCELLANEOUS EXPENSE		24.00	
R17	PAYROLL TAXES EXPENSE		176.00	
R18	SALARIES EXPENSE		2100.00	
R19	SUPPLIES EXPENSE		100.00	
R20	UTILITIES EXPENSE		150.00	
R21				
R22	TOTAL EXPENSES:			
R23				
R24	NET INCOME		================================	
R25				

COMPUTE THE FOLLOWING FORMULAS: (Be sure you are in the cell listed at the left and then use relative references to compute the formulas.)

R6C3 -- ADD sales returns and sales discounts.

R8C4 -- SUBTRACT (sales (R4C3) - the total of sales returns and sales discounts (R6C3)).

R1164 - SUBTRACT (net sales (R8C4) - cost of goods sold (R9C4)).

R22C4 - ADD up all operating expenses from cash short and over to utilities expense.

R24C4 - SUBTRACT (gross profit on sales (R11C4) - total expenses (R22C4)).

Use an equal sign to get the double rule in R25C2; then copy right 2 cells to C3 and C4.

PRINT: Print the project and the formulas.

LEARNING ACTIVITY 5A

AFTER PRINTING OUT DATA, MAKE THE FOLLOWING CHANGES IN YOUR PROJECT: (All other data remains the same).

SALES	10000.00
SALES DISCOUNTS	40.00
COST OF GOODS SOLD	4800.00
DELIVERY EXPENSE	70.00
MISCELLANEOUS EXPENSE	28.00
PAYROLL TAXES EXPENSE	180.00
UTILITIES EXPENSE	154.00

Print out new income statement data. You DO NOT need to reprint your formulas.

Hand in to be graded:
   2 printouts of data - each will contain different data.
   Printout of formulas.

30 points possible--you will be graded on accuracy, how well you followed directions, formulas, etc. BE SURE YOUR DATA AND INFORMATION IS ENTERED ACCURATELY AND YOUR SPELLING IS CORRECT! ! !

COMPLETE THE FOLLOWING ANALYSIS:

   Compare the two income statements and describe why net income increased?

INCOME STATEMENT

```
REVENUE
   SALES                                          $9260.00
   LESS:   SALES RETURNS              $960.00
                                       $37.00    $997.00
                                                _____

NET SALES                                                    $8263.00
COST OF GOODS SOLD                                           $5180.00
                                                            _____
GROSS PROFIT ON SALES                                        $3083.00
OPERATING EXPENSES
   CASH SHORT & OVER                              $8.00
   DELIVERY EXPENSE                              $65.00
   INSURANCE EXPENSE                             $30.00
   MISCELLANEOUS EXPENSE                         $24.00
   PAYROLL TAXES EXPENSE                        $176.00
   SALARIES EXPENSE                            $2100.00
   SUPPLIES EXPENSE                             $100.00
   UTILITIES EXPENSE                            $150.00
                                              _____
      TOTAL EXPENSES:                                        $2653.00
                                                            _____
NET INCOME                                                   $430.00
                    =======================================
```

INCOME STATEMENT

```
REVENUE
  SALES                                      $10000.00
  LESS:  SALES RETURNS           $960.00
         SALES DISCOUNTS          $40.00     $1000.00
                                  ─────────────────────
NET SALES                                                $9000.00
COST OF GOODS SOLD                                       $4800.00
                                                        ───────────
GROSS PROFIT ON SALES                                    $4200.00
OPERATING EXPENSES
  CASH SHORT & OVER                             $8.00
  DELIVERY EXPENSE                             $70.00
  INSURANCE EXPENSE                            $30.00
  MISCELLANEOUS EXPENSE                        $28.00
  PAYROLL TAXES EXPENSE                       $180.00
  SALARIES EXPENSE                           $2100.00
  SUPPLIES EXPENSE                            $100.00
  UTILITIES EXPENSE                           $154.00
                                            ──────────
     TOTAL EXPENSES:                                     $2670.00
                                                        ───────────
NET INCOME                                               $1530.00
                      ==================================
```

LESSON TITLE: Learning Activity 6

OBJECTIVES: To format an electronic spreadsheet.
                  To enter data on an electronic spreadsheet.
                  To enter formulas on an electronic spread-
                    sheet.
                  To utilize the COPY command.
                  To develop an IF function.
                  To utilize the SAVE command.
                  To print a copy of the electronic spread-
                    sheet.

TEACHING AIDS AND REFERENCES:

    Handouts: Learning Activity 6--Checkbook Project
                Key for Learning Activity (LA) 6

TEACHING OUTLINE:

1.   Format the spreadsheet. It would be easier to format an
     entire block rather than column by column or row by row.

2.   Key-enter the data.

3.   Key-enter the formulas. Be sure the student copies
     formulas down as instructed on the learning activity
     handout.

4.   Save the spreadsheet.

5.   Print the formulas and the spreadsheet.

     HINTS:

     IF Statement -- Most spreadsheet programs define the IF
     function as follows: IF(condition,X,Y) X occurs if the
     condition is true and Y occurs if the condition is false.
     Refer to reference manual for further examples and details.

     The pitch on the printer should be reduced to print the
     entire project on one page. (We recommend a 16.5 pitch.)

     If you wish to continue with the second month reconcilia-
     tion, copy formulas and move ending balances down.

MATERIALS NEEDED/OUTCOMES:

1.   Learning Activity 6.

2.   Reference Manual for Spreadsheet Program.

CHECKBOOK PROJECT

1. Widen columns to 12 characters, except column 3 which
    should be widened to 25.

2. Label the columns, starting with Column 1, as follows:

    Column 1   CHECK #
    Column 2   DATE
    Column 3   PAYEE
    Column 4   (blank column--no label is needed)
    Column 5   DEPOSITS
    Column 6   CLEARED?
    Column 7   PAYMENTS
    Column 8   BALANCE
    Column 9   OUTSTANDING

3. Go to ROW 2 COLUMN 1 (R2C1) and format column 1 as an
    integer.

4. Format Column 6 in integers.

5. Format Column 5, 7, 8, and 9 in $.

- -

    NOTE: When setting up a worksheet to keep track of your
    balance and outstanding (items that have not cleared the
    bank yet) checks and deposits, each column must contain a
    formula so when data is entered the balance and out-
    standing columns are automatically figured.

    NOTE: The balance column must have two formulas because
    the first row does not have a previous balance.

6. Formula for the first BALANCE in column 8 = Deposits -
    Payments.

7. Formula for next BALANCE in Column 8 = Previous Balance +
    Deposits - Payments. Copy formula down 14 rows.

- -

    NOTE: Again, you need two formulas because of the lack of
    a previous balance. The IF statement is used because you
    must test each check and deposit for an outstanding status.
    If the check or deposit has cleared the bank, a 1 will be
    entered in the CLEARED column; if they haven't, nothing is
    entered in the CLEARED column.

8. Formula for the first Balance in Column 9 = If (Cleared =
    0, Deposits - Payments, 0).

9. Formula for next BALANCE in Column 9 = If (Cleared = 0, Previous Outstanding + Deposits - Payments, Previous Outstanding). Copy formula down 14 rows.

10. Move cursor to R20C7 and label it BANK BALANCE; label R21C7 RECONCILIATION.

11. Formula for R21C9 = Bank Balance + Last Outstanding Balance.

12. Enter test data --

CHECK #	DATE		PAYEE	DEPOSITS	PAYMENTS
	April	1		$425.00	
101		2	Housing, Inc.		$250.50
102		3	Emil's Dating Serv.		$ 56.12
103		3	Green Lawn Service		$102.15
		4		$565.00	
104		4	Rent-A-Tux		$ 44.10
105		5	Landlord, Inc.		$850.00
		6		$999.95	
106		7	Tillies Telephone		$ 21.12
107		10	Zapp-A-Watt Co.		$132.40
		11		$250.50	
108		13	Rose Bud's Flowers		$ 13.13
109		14	Eat-A-Lot Food Store		$155.35
110		15		$110.10	
111		15	Wine-'N-Dine		$ 75.57
		15	$400.78		

13. On April 15 the bank statement indicated the following:
    Checks cleared   102, 104, 105, 107, 109
    Deposits cleared April 1, 4, 6, 11, 14

    Bank Balance $1108.58

    Given this information, complete the cleared column
    (Refer to NOTE 8).

14.   PRINT CHECKBOOK PROJECT

15.   PRINT FORMULAS

16.   HAND IN TO BE GRADED:
            FORMULAS
            PROJECT OUTPUT

17.   30 POINTS POSSIBLE.

	DATE	PAYEE	DEP.	CLEARED?	PAYMENTS	BALANCE	OUTSTANDING
	Apr.1		$425.00	1		$425.00	$0.00
101	2	Housing, Inc.		0	$250.50	$174.50	($250.50)
102	3	Emil's Dating Service		1	$56.12	$118.38	($250.50)
103	3	Green Lawn Serv.		0	$102.15	$16.23	($352.65)
	4		$565.00	1		$581.23	($352.65)
104	4	Rent-A-Tux		1	$44.10	$537.13	($352.65)
105	5	Landlord, Inc.		1	$850.00	($312.87)	($352.65)
	6		$995.95	1		$683.08	($352.65)
106	7	Tillies Telephone		0	$21.12	$661.96	($373.77)
107	10	Zapp-A-Watt Co.		1	$132.40	$529.56	($373.77)
	11		$250.50	1		$780.06	($373.77)
108	13	Rose Bud's Flowers		0	$13.13	$766.93	($386.90)
109	14	Eat-A-Lot Food Store		1	$155.35	$611.58	($386.90)
	14		$110.10	1		$721.68	($386.90)
110	15	Wine-'N-Dine		0	$75.57	$646.11	($462.47)
	15		$400.78	0		$1046.89	($61.69)

BANK BALANCE	$1108.58
RECONCILIATION	$1046.89

LESSON TITLE: Learning Activity 7

OBJECTIVES: To format an electronic spreadsheet.
                To enter data on an electronic spreadsheet.
                To enter formulas on an electronic spread-
                    sheet.
                To utilize the COPY command.
                To develop an IF function.
                To utilize a WINDOW command.
                To change data on a spreadsheet and understand
                    the effect of the new data in "what if"
                    projections.
                To utilize the SAVE command.
                To print a copy of the electronic spreadsheet.

TEACHING AIDS AND REFERENCES:

    Handouts: Learning Activity 7--Interest Project
                Key for Learning Activity (LA) 7 and 7A
                    (Instructions are for a horizontal format)
                A vertical format Key is also included, but
                    the learning activity instructions would
                    have to be revised.

TEACHING OUTLINE:

1. Format the spreadsheet. It would be easier to format an
    entire block rather chan column by column or row by row.

2. Key-enter the data.

3. Key-enter the formulas. Be sure the student copies the
    formulas down as instructed on the learning activity
    handout.

4. Save the spreadsheet.

5. Print the formulas and spreadsheet.

6. Possible Questions or Problems:

    a. If you borrowed $2000, the last payment would be in
        what month?
    b. What is the total interest for the first year if you
        borrowed $50,000?
    c. If the vertical format is used (refer to the vertical
        KEY enclosed), label the months MONTH 1, etc., rather
        than beginning with September. Then you can extend
        the repayment schedule to see how long it would take
        to pay off the loan. Encourage the students to use
        their imagination in changing and inserting new data.

LEARNING ACTIVITY 7 (continued)

HINTS:

If possible, it would be easier to complete the worksheet by condensing the screen on the monitor from 80 to 132 columns. In this way the entire worksheet can be seen on the screen at one time.

This project calculates simple interest, not compound interest, for a 12-month period.

IF Statement -- Most spreadsheet programs define the IF function as follows: IF(condition,X,Y) X occurs if the condition is true and Y occurs if the condition is false. Refer to the reference manual for further examples and details.

If you are using MULTIPLAN, you would use the COPY FROM command for instruction 12.

Paper that is 8 1/2" x 11" is not wide enough to print the entire project across the page. We recommend a 12 pitch on the printer, and to print in two segments as illustrated on KEY 7 and 7A.

MATERIALS NEEDED/OUTCOMES:

1. Learning Activity 7.

2. Reference Manual for Spreadsheet Program.

INTEREST PROJECT

1. Turn off automatic calculations until finished. EACH TIME YOU TURN THE COMPUTER ON YOU WILL HAVE TO TURN OFF THE AUTOMATIC CALCULATIONS BEFORE YOU CONTINUE WITH THE PROBLEM.

2. Format in $.

3. Widen columns enough to accommodate all entries.

4. Enter columns and rows as shown on page 36.

5. Enter $15000.00 as the beginning balance in Row 4 Column 1(R4C1).

6. Calculate September interest by multiplying the beginning balance by .18 and dividing by 12.

7. Enter $505.41 as September payment.

8. Compute principal by taking monthly payment - interest. Copy formula.

9. Compute total payment by adding monthly payment plus extra payment. Copy formula.

10. Compute the balance row. The balance for September will be the beginning balance--enter as an absolute reference. The balances for the remaining months, starting with October, requires a formula. In doing so, we want to make sure the balance does not go below zero and when it does reach 0 show a 0 in the last column. Use the IF statement. (Remember the IF statement is a logical statement. If the condition is true, X occurs, if the condition is false, Y occurs.) IF(condition,X,Y)

    FORMULA: IF (the value of the PREVIOUS balance is greater than 0, PREVIOUS balance minus the PREVIOUS principal minus PREVIOUS extra payment; if it is not, display a 0). Reminder: Don't forget to copy where appropriate.

11. Monthly payment amount will be the same for all months except the last month. Seldom does the last payment equal the regular payment amount. We know the last payment will be the previous balance amount. Again, use the IF statement.

FORMULA: If (the balance is greater than our previous monthly payment, display the previous monthly payment. If it is not, display the amount of the current balance + current interest). If there's no balance, the cell should display a 0. Copy formula.

12. WINDOW - A split window is used so the first column labels stay on the screen. Therefore, when you scroll across to Column 14, you will be able to determine what row you are in.

13. Now that the table is complete, total the monthly payments by using the SUM function and a range. #COPY that formula into the interest, principal, extra payment, and total payment rows.

14. Now that you have completed and copied all formulas, engage the recalculate key and everything will recalculate the correct amounts for you.

15. Print the chart and the formulas.

16. Once you have printed everything, go back and change the amount borrowed (September balance) to $4000. Recalculate and then print the chart only. (You do not have to print formulas again).

17. Hand in to be graded: Formulas, 2 different printouts.

18. 30 points possible.

TABLE SETUP

STARTING IN ROW 2 COLUMN 2, LABEL COLUMNS 2 THROUGH 13 WITH THE MONTHS STARTING WITH SEPTEMBER AND ENDING WITH AUGUST. IN ROW 2 COLUMN 14 TYPE "TOTALS".

COLUMN 1 ROW 4   LABEL "Balance"

COLUMN 1 ROW 6   LABEL "Monthly"
         ROW 7   LABEL " Payment" (indent 2 spaces as shown)

COLUMN 1 ROW 9   LABEL "Interest"
         ROW 10 LABEL "Principal"

COLUMN 1 ROW 12 LABEL "Extra"
         ROW 13 LABEL " Payment" (indent)

COLUMN 1 ROW 14 LABEL "Total"
         ROW 15 LABEL " Payments" (indent)

	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY
Balance	$15000.00	$14719.59	$14434.97	$14146.09	$13852.87	$13555.25
Monthly Payment	$505.41	$505.41	$505.41	$505.41	$505.41	$505.41
Interest	$225.00	$220.79	$216.52	$212.19	$207.79	$203.33
Principal	$280.41	$284.62	$288.89	$293.22	$297.62	$302.08
Extra Payment						
Total Payments	$505.41	$505.41	$505.41	$505.41	$505.41	$505.41

	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	TOTALS
Balance	$13253.17	$12946.56	$12635.35	$12319.47	$11998.85	$11673.42	
Monthly Payment	$505.41	$505.41	$505.41	$505.41	$505.41	$505.41	$6064.92
Interest	$198.80	$194.20	$189.53	$184.79	$179.98	$175.10	$2408.03
Principal	$306.61	$311.21	$315.88	$320.62	$325.43	$330.31	$3656.89
Extra Payment							$0.00
Total Payments	$505.41	$505.41	$505.41	$505.41	$505.41	$505.41	$6064.92

KEY FOR LA 7A

	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY
Balance	$4000.00	$3554.59	$3102.50	$2643.63	$2177.87	$1705.13
Monthly Payment	$505.41	$505.41	$505.41	$505.41	$505.41	$505.41
Interest	$60.00	$53.32	$46.54	$39.65	$32.67	$25.58
Principal	$445.41	$452.09	$458.87	$465.76	$472.74	$479.83
Extra Payment						
Total Payments	$505.41	$505.41	$505.41	$505.41	$505.41	$505.41

	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	TOTALS
	$1225.30	$738.27	$243.93	$0.00	$0.00	$0.00	
	$505.41	$505.41	$247.59	$0.00	$0.00	$0.00	$4290.87
	$18.38	$11.07	$3.66	$0.00	$0.00	$0.00	$290.87
	$487.03	$494.34	$243.93	$0.00	$0.00	$0.00	$4000.00
							$0.00
	$505.41	$505.41	$247.59	$0.00	$0.00	$0.00	$4290.87

VERTICAL FORMAT FOR LA 7

	Balance	Monthly Payment	Applied Interest	To Principal	Extra Payment	Total Payments
Month 1	$15000.00	$505.41	$225.00	$280.41		$505.41
Month 2	$14719.59	$505.41	$220.79	$284.62		$505.41
Month 3	$14434.97	$505.41	$216.52	$288.89		$505.41
Month 4	$14146.09	$505.41	$212.19	$293.22		$505.41
Month 5	$13852.87	$505.41	$207.79	$297.62		$505.41
Month 6	$13555.25	$505.41	$203.33	$302.08		$505.41
Month 7	$13253.17	$505.41	$198.80	$306.61		$505.41
Month 8	$12946.56	$505.41	$194.20	$311.21		$505.41
Month 9	$12635.35	$505.41	$189.53	$315.88		$505.41
Month 10	$12319.47	$505.41	$184.79	$320.62		$505.41
Month 11	$11998.85	$505.41	$179.98	$325.43		$505.41
Month 12	$11673.42	$505.41	$175.10	$330.31		$505.41

| TOTALS | | $6064.92 | $2408.03 | $3656.89 | $0.00 | $6064.92 |

VERTICAL FORMAT FOR LA 7A

	Balance	Monthly Payment	Applied Interest	To Principal	Extra Payment	Total Payments
September	$4000.00	$505.41	$60.00	$445.41		$505.41
October	$3554.59	$505.41	$53.32	$452.09		$505.41
November	$3102.50	$505.41	$46.54	$458.87		$505.41
December	$2643.63	$505.41	$39.65	$465.76		$505.41
January	$2177.87	$505.41	$32.67	$472.74		$505.41
February	$1705.13	$505.41	$25.58	$479.83		$505.41
March	$1225.30	$505.41	$18.38	$487.03		$505.41
April	$738.27	$505.41	$11.07	$494.34		$505.41
May	$243.93	$247.59	$3.66	$243.93		$247.59
June	$0.00	$0.00	$0.00	$0.00		$0.00
July	$0.00	$0.00	$0.00	$0.00		$0.00
August	$0.00	$0.00	$0.00	$0.00		$0.00
TOTALS		$4290.87	$290.87	$4000.00	$0.00	$4290.87

LESSON TITLE: Learning Activity 8

OBJECTIVES: To organize and create a spreadsheet.
                 To integrate all previous objectives.

TEACHING AIDS AND REFERENCES:

   Handouts: Learning Activity 8--Employee's Earnings
               Record Key for Learning Activity (LA) 8

TEACHING OUTLINE:

1.   Distribute Learning Activity 8.   Let the students set up
     and organize the spreadsheet following the guidelines in
     their instructions.   The criteria that should be used in
     evaluation would be (1) following the instructions in the
     learning activity and (2) organizing setup in an easily
     readable form.

     HINTS:

     The students should use their own personal information on
     the heading.   (i.e. name, address, social security number,
     etc.)

     The students could look up the federal and state taxes on a
     withholding chart rather than the instructor supplying
     them with the data.

     Be sure the students include a figure on the first line of
     the Accumulated Earnings column.

     A suggested format is provided in the KEY for LA 8.
     Students should organize and create the spreadsheet setup.

MATERIALS NEEDED/OUTCOMES:

     1.   Learning Activity 8.

     2.   Reference Manual for Spreadsheet Program.

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EMPLOYEE EARNINGS PROJECT

INSTRUCTIONS

Every business must pay its employees, and as a result it must report these payments to the IRS. This places a burden on the small business because a record of payment must be kept for the quarterly reporting period. The purpose of this work-sheet is to help you keep this information in an orderly and timely fashion.

1. Format columns large enough to accommodate data. Some columns will not be large enough to accommodate title and employee information so you will have to improvise by entering in as much data as possible and continuing on in the next column.

2. Format necessary columns.

3. Set this project up in an efficient and readable form. Use as many lines as you need. Include in the top heading the following information: Employee, Address, Social Security number, number of exemptions, phone number, marital status, and quarter. Separate the top heading from the column headings with some kind of separator (i.e. underline, star, etc.).

4. The column headings include MM/DD/YY, REGULAR HOURS, OVER-TIME HOURS, RATE, REGULAR EARNINGS, OVERTIME EARNINGS, TOTAL EARNINGS, FICA, FEDERAL TAX, STATE TAX, DUES, OTHER DEDUC-TIONS, TOTAL DEDUCTIONS, NET PAY, AND ACCUMULATED EARNINGS. (Regular hours & Overtime Hours are 2 different columns and Regular Earnings, Overtime Earnings, and Total Earnings are 3 separate columns.)

5. Set up worksheet form with a heading and formulas. A formula is required to compute regular earnings and total earnings. Regular earnings is rate times regular hours worked. Over-time earnings is rate times 1 1/2 times overtime hours. Total earnings are regular and overtime earnings added together.

6. Be sure to accumulate the totals at the bottom. You may set the chart up any way you wish as long as all information is clearly illustrated. Once you have the chart completed, enter the test data.

7. Print out and hand in both worksheet and formulas to be graded.

8. 30 points possible.

EMPLOYEE EARNINGS PROJECT TEST DATA

For employee information use your own personal data. The
following is the data for the first quarter.

MM/DD/YY	Regular Hours	Overtime Hours	Rate	FICA	Federal Tax	State Tax
1/4/85	40		5.50	Create	$15.06	$3.02
1/11/85	40	8	5.50	a	$20.12	$4.10
1/18/85	40	8	5.50	formula	$20.12	$4.10
1/25/85	40		5.50	to	$15.06	$3.02
2/1/85	40		5.50	figure	$15.06	$3.02
2/8/85	40		5.75	a tax	$16.01	$3.25
2/15/85	35		5.75	of 6.25%	$13.91	$1.53
2/22/85	40		5.75	of total	$16.01	$3.25
3/1/85	40		5.75	earnings	$16.01	$3.25
3/8/85	40		5.75	and copy	$16.01	$3.25
3/15/85	40		5.75	down the	$16.01	$3.25
3/22/85	40		5.75	formula.	$14.01	$1.80
3/29/85	36		5.75			

Dues	Other Deductions	Total Deductions	Net Pay	Accumulated Earnings
Create a	$1.50	Create a	Create a	Create a
formula	$.75	formula	formula	formula
to	$.50	to	to	to
figure	$2.00	figure	figure	figure
dues as	$2.25	the sum	net pay	the total
3% of	$1.25	of total	(earnings	gross earnings
total	$.60	deductions	minus	for each
earnings	$.80	for taxes	total	week and
and copy	$2.50	and dues,	deductions)	copy the
formula.	$1.00	etc., and	and copy	formula.
	$1.10	copy the	formula.	
	$.90	formula.		
	$.40			

EMPLOYEE'S EARNINGS RECORD

EMPLOYEE: Joseph Wright   Soc. Sec.: 555-55-5555
Address: 103 F Ave. Anytown, IA 00000 Phone: 319-555-5555
Number of Exemptions: 2   1st   Quarter 1985
Marital Status: ___ s

MM/DD/YY	REGULAR HOURS	OVER-TIME HOURS	RATE	REGULAR EARNINGS	OVER-TIME EARNINGS	TOTAL EARN-INGS	FICA TAX	FEDERAL INC. TAX
01/04/85	40		$5.50	$220.00	$0.00	$220.00	$.5.51	$15.06
01/11/85	40	8	$5.50	$220.00	$66.00	$286.00	$20.16	$20.12
01/18/85	40	8	$5.50	$220.00	$66.00	$286.00	$20.16	$20.12
01/25/85	40		$5.50	$220.00	$0.00	$220.00	$15.51	$15.06
02/01/85	40		$5.50	$220.00	$0.00	$220.00	$15.51	$15.06
02/08/85	40		$5.75	$230.00	$0.00	$230.00	$16.22	$16.01
02/15/85	35		$5.75	$201.25	$0.00	$201.25	$14.19	$13.91
02/22/85	40		$5.75	$230.00	$0.00	$230.00	$16.22	$16.01
03/01/85	40		$5.75	$230.00	$0.00	$230.00	$16.22	$16.01
03/08/85	40		$5.75	$230.00	$0.00	$230.00	$16.22	$16.01
03/15/85	40		$5.75	$230.00	$0.00	$230.00	$16.22	$16.01
03/22/85	40		$5.75	$207.00	$0.00	$207.00	$14.59	$14.01
03/29/85	36		$5.75	$0.00	$0.00	$0.00	$0.00	

QUARTER
TOTALS $2888.25 $132.00 $3020.25 $212.93 $209.40

STATE INC. TAX	DUES	OTHER DEDUCTIONS	TOTAL DEDUCTIONS	NET PAY	ACCUM. EARNINGS
$3.02	$6.60	$1.50	$41.69	$178.31	$220.00
$4.10	$8.58	$0.75	$53.71	$232.29	$506.00
$4.10	$8.58	$0.50	$53.46	$232.54	$792.00
$3.02	$6.60	$2.00	$42.19	$177.81	$1012.00
$3.02	$6.60	$2.25	$42.44	$177.56	$1232.00
$3.25	$6.90	$1.25	$43.63	$186.38	$1462.00
$1.53	$6.04	$0.60	$36.27	$164.98	$1663.25
$3.25	$6.90	$0.80	$43.18	$186.83	$1893.25
$3.25	$6.90	$2.50	$44.88	$185.13	$2123.25
$3.25	$6.90	$1.00	$43.38	$186.63	$2353.25
$3.25	$6.90	$1.10	$43.48	$186.53	$2583.25
$3.25	$6.90	$0.90	$43.28	$186.73	$2813.25
$1.80	$6.21	$0.40	$37.01	$169.99	$3020.25
	$0.00		$0.00	$0.00	$3020.25
$40.09	$90.61	$15.55	$568.58	$2451.67	

LESSON TITLE: Learning Activity 9

OBJECTIVES: To organize and create a spreadsheet.
                To integrate all previous objectives.

TEACHING AIDS AND REFERENCES:

    Handouts: Learning Activity 9--Sales, Cost of Goods Sold,
                  and Gross Margin Budget
                Key for Learning Activity (LA) 9 and 9A

TEACHING OUTLINE:

1. Distribute Learning Activity 9. Allow the student to
    organize and set up the spreadsheet according to the learn-
    ing activity instructions. Evaluation criteria should be
    based upon (1) ability of the student to follow instruc-
    tions, (2) format and organization of the spreadsheet, and
    (3) correctness of the spreadsheet formulas. This problem
    can be used to reinforce previously learned commands.

2. Optional problem:
    Another option that you might want to consider is the
    following: Give the students the gross margin percent that
    you want to achieve, the projected sales quantity, and a
    given unit cost. Have them determine, using formulas, what
    the projected sales dollars and unit selling price must be
    to achieve the given gross margin percent. Formulas would
    be as follows:
        Projected Sales Quantity = Given
        Unit Selling Price = Projected Sales Dollars/Projected
                              Sales Quantity
        Projected Sales Dollars = Projected Cost of Sales/(1 -
                              Gross Margin %)
        Unit Cost = Given
        Projected Cost of Sales = Projected Sales Quantity X Unit
                              Cost
        Projected Gross Margin = Projected Sales Dollars -
                              Projected Cost of Sales
        Gross Margin Percent = Given

MATERIALS NEEDED/OUTCOMES:

1. Learning Activity 9.

2. Reference Manual for Spreadsheet Program.

SALES, COST OF GOODS SOLD, AND GROSS MARGIN BUDGET

INSTRUCTIONS

The XYZ Corporation sells the following three products:

        1) Bingos
        2) Bangos
        3) Bongos

Projected sales quantity and unit selling price for the first quarter of 198X are as follows:

	Projected Sales Quantity	Unit Selling Price
Bingos	2,500	$10.45
Bangos	1,800	$ 8.63
Bongos	3,200	$ 7.45

The cost of purchasing these three products is as follows:

Bingos	$7.85
Bangos	$6.41
Bongos	$5.25

Using a spreadsheet program that is available to you, prepare a Sales, Cost of Goods Sold, and Gross Margin Budget for the first quarter of 198X. Your budget should contain the following information:

        1) Projected sales by product.
        2) Unit selling price by product.
        3) Projected sales dollars by product.
        4) Unit cost of goods sold by product.
        5) Projected total cost of goods sold by product.
        6) Gross margin by product.
        7) Total sales, cost of goods sold, and gross margin for all products.
        8) Gross margin percent by product and in total.

There is no "correct" format for this budget--be creative, use your own judgment, and make sure you include all of the above information. Hand in a printout of your budget.

LEARNING ACTIVITY 9A

What is the impact on total gross margin if cost of goods sold for each of the products increases/decreases, as follows:

Bingos	10% increase
Bangos	5% decrease
Bongos	7% increase

Hand in a printout of your solution.

SALES, COST OF GOODS SOLD, AND GROSS MARGIN BUDGET
FOR THE FIRST QUARTER ENDING MARCH 31, 198X

PRODUCT	PROJECTED SALES QUANTITY	UNIT SELLING PRICE	PROJECTED SALES DOLLARS	UNIT COST	PROJECTED COST OF SALES	PROJ. GROSS MARGIN	GROSS MARGIN PERCENT
BINGOS	2,500	$10.45	$26,125.00	$7.85	$19,625.00	$6,500.00	24.88%
BANGOS	1,800	$8.63	$15,534.00	$6.41	$11,538.00	$3,996.00	25.72%
BONGOS	3,200	$7.45	$23,840.00	$5.25	$16,800.00	$7,040.00	29.53%
TOTALS			$65,499.00		$47,963.00	$17,536.00	26.77%

SALES, COST OF GOODS SOLD, AND GROSS MARGIN BUDGET
FOR THE FIRST QUARTER ENDING MARCH 31, 198X

PRODUCT	PROJECTED SALES QUANTITY	UNIT SELLING PRICE	PROJECTED SALES DOLLARS	UNIT COST	PROJECTED COST OF SALES	PROJ. GROSS MARGIN	GROSS MARGIN PERCENT
BINGOS	2,500	$10.45	$26,125.00	$8.64	$21,587.50	$4,537.50	17.37%
BANGOS	1,800	$8.63	$15,534.00	$6.09	$10,961.10	$4,572.90	29.44%
BONGOS	3,200	$7.45	$23,840.00	$5.62	$17,976.00	$5,864.00	24.60%
TOTALS			$65,499.00		$50,524.60	$14,974.40	22.86%

THIS WILL BE THE RESULT IF THE STUDENTS USE A FORMULA IN THE
UNIT COST COLUMN AND DO NOT ROUND TO THE NEAREST CENT.

SALES, COST OF GOODS SOLD, AND GROSS MARGIN BUDGET
FOR THE FIRST QUARTER ENDING MARCH 31, 198X

PRODUCT	PROJECTED SALES QUANTITY	UNIT SELLING PRICE	PROJECTED SALES DOLLARS	UNIT COST	PROJECTED COST OF SALES	PROJ. GROSS MARGIN	GROSS MARGIN PERCENT
BINGOS	2,500	$10.45	$26,125.00	$8.64	$21,600.00	$4,525.00	17.32%
BANGOS	1,800	$8.63	$15,534.00	$6.09	$10,962.00	$4,572.00	29.43%
BONGOS	3,200	$7.45	$23,840.00	$5.62	$17,984.00	$5,856.00	24.56%
TOTALS			$65,499.00		$50,546.00	$14,953.00	22.83%

THIS WILL BE THE RESULT IF THE STUDENTS CALCULATE THE NEW UNIT
COST INDEPENDENTLY AND ENTER THE ROUNDED AMOUNT IN THE UNIT
COST COLUMN.

LESSON TITLE: Learning Activity 10

OBJECTIVES: To organize and create a spreadsheet.
                 To integrate all previous objectives.

TEACHING AIDS AND REFERENCES:

   Handouts: Learning Activity 10--Personal Cash Budget
               Key for Learning Activity (LA) 10 and 10A

TEACHING OUTLINE:

1. Distribute Learning Activity 10. Allow the student to
    organize and set up the budget according to the learning
    activity instructions. Evaluation criteria should be
    based upon (1) ability of the student to follow instruc-
    tions, (2) format and organization of the spreadsheet,
    and (3) correctness of the spreadsheet formulas. This
    problem can be used to reinforce previously learned
    commands.

2. Optional problem:
    Another option that you might want to consider is as
    follows: Using the budget prepared in Learning Activity
    10, have the students project a budget for the next six
    months of the year based on the following assumptions:

Part-time job	2% raise each month, using June as the base month.
Clothing allowance	$175 in July.
Interest	1% increase each month, using June as the base month.
Gifts	$100 at Christmas
Car insurance	$150 in August
Gas, oil, etc.	5% increase each month, using June as the base month.
Entertainment	$60 each month.
Clothing	4% increase each month, using June as the base month.
Miscellaneous	$5 per month.

SIX MONTH BUDGET FOR (STUDENT'S NAME)

OPTIONAL PROBLEM

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
BEGINNING BALANCE	$100	$290	$155	$220	$255	$115
RECEIPTS:						
PART-TIME JOB	$200	$200	$200	$220	$220	$220
CLOTHING ALLOW.	$175	-	-	-	-	-
INTEREST	$10	$10	$10	$10	$10	$10
GIFTS - OTHER	-	-	-	-	-	-
TOTAL RECEIPTS	$385	$210	$260	$230	$230	$230
TOTAL CASH AVAILABLE	$485	$500	$415	$450	$485	$345
EXPENDITURES:						
CAR INSURANCE	-	$150	-	-	-	-
GAS, OIL, ETC.	$80	$80	$80	$80	$80	$80
ENTERTAINMENT	$60	$60	$60	$135	$135	$60
CLOTHING	$50	$50	$50	$150	$150	$50
MISCELLANEOUS	$5	$5	$5	$5	$5	$5
TOTAL EXPENDITURES	$195	$345	$195	$195	$370	$195
ENDING BALANCE	$290	$155	$220	$255	$115	$150

MATERIALS NEEDED/OUTCOMES:

1. Learning Activity 10.

2. Reference Manual for Spreadsheet Program.

SIX MONTH BUDGET FOR (STUDENT'S NAME)   OPTIONAL PROBLEM - cont.

	PER-CENTAGE INCREASE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
BEGINNING BALANCE		$150.00	$358.50	$240.31	$270.23	$298.04	$323.51
RECEIPTS:							
PART-TIME JOB	2%	$224.40	$228.89	$233.47	$238.14	$242.90	$247.76
CLOTHING ALLOW.	–	$175.00	–	–	–	–	–
INTEREST	1%	$10.10	$10.20	$10.30	$10.40	$10.50	$10.61
GIFTS – OTHER	–	–	–	–	–	–	$100.00
TOTAL RECEIPTS		$409.50	$239.09	$243.77	$248.54	$253.40	$358.37
TOTAL CASH AVAILABLE		$559.50	$597.59	$484.08	$518.77	$551.44	$681.88
EXPENDITURES							
CAR INSURANCE	–	–	$150.00	–	–	–	–
GAS, OIL, ETC.	5%	$84.00	$88.20	$92.61	$97.24	$102.10	$107.21
ENTERTAINMENT	–	$60.00	$60.00	$60.00	$60.00	$60.00	$60.00
CLOTHING	4%	$52.00	$54.08	$56.24	$58.49	$60.83	$63.26
MISCELLANEOUS	–	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00
TOTAL EXPENDITURES		$201.00	$357.28	$213.85	$220.73	$227.93	$235.47
ENDING BALANCE		$358.50	$240.31	$270.23	$298.04	$323.51	$446.41

MATERIALS NEEDED/OUTCOMES:

1. Learning Activity 10.

2. Reference Manual for Spreadsheet Program.

PERSONAL CASH BUDGET

INSTRUCTIONS

Given the following information, prepare a personal budget for yourself for the first six months of 198X. The column headings should indicate the names of the months, while the row headings should indicate beginning cash balance, itemized receipts, total receipts, total cash available, itemized expenditures, total expenditures, and ending cash balance. Remember, ending cash balance. Remember, ending cash balance of one month will be the beginning cash balance of the next month. Beginning cash balance on January 1 is $100. Hand in your printout.

Receipts:

Part-time job	You get paid $200 per month. In April you receive a 10% raise.
Clothing allowance from parents	You receive $175 each January and July.
Interest on savings account	You receive $10 per month.
Gifts - other	Your Grandmother always sends you $50 for your birthday. Your birthday is in March.

Expenditures:

Car insurance	You pay $300 per year for car insurance. This is paid in two semi-annual installments - 1/2 in February and 1/2 in August.
Gas, oil, etc.	You pay $80 each month for gas, oil, and maintenance for your parents car that you use.
Entertainment	You spend $60 each month, except in May, when you add an additional $75 to cover prom expenses.
Clothing	You spend $50 each month for clothes. Add an extra $100 to May's amount to cover prom costs.
Miscellaneous	You spend $5 each month on miscellaneous items.

LEARNING ACTIVITY 10A

What effect is there on your April, May, and June ending cash balances if we assume that, instead of receiving a raise in April. you lose your job? Hand in your printout.

SIX MONTH BUDGET FOR (STUDENT'S NAME)

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
BEGINNING BALANCE	$100	$290	$155	$220	$255	$115
RECEIPTS: PART-TIME JOB	$200	$200	$200	$220	$220	$220
CLOTHING ALLOW.	$175	–	–	–	–	–
INTEREST	$10	$10	$10	$10	$10	$10
GIFTS – OTHER	–	–	$50	–	–	–
TOTAL RECEIPTS	$385	$210	$260	$230	$230	$230
TOTAL CASH AVAILABLE	$485	$500	$415	$450	$485	$345
EXPENDITURES: CAR INSURANCE	–	$150	–	–	–	–
GAS, OIL, ETC.	$80	$80	$80	$80	$80	$80
ENTERTAINMENT	$60	$60	$60	$60	$135	$60
CLOTHING	$50	$50	$50	$50	$150	$50
MISCELLANEOUS	$5	$5	$5	$5	$5	$5
TOTAL EXPENDITURES	$195	$345	$195	$195	$370	$195
ENDING BALANCE	$290	$155	$220	$255	$115	$150

SIX MONTH BUDGET FOR (STUDENT'S NAME)

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
BEGINNING BALANCE	$100	$290	$155	$220	$35	($325)
RECEIPTS:						
PART-TIME JOB	$200	$200	$200	–	–	–
CLOTHING ALLOW.	$175	–	–	–	–	–
INTEREST	$10	$10	$10	$10	$10	$10
GIFTS – OTHER	–	–	$50	–	–	–
TOTAL RECEIPTS	$385	$210	$260	$10	$10	$10
TOTAL CASH AVAILABLE	$485	$500	$415	$230	$45	$315)
EXPENDITURES:						
CAR INSURANCE	–	$150	–	–	–	–
GAS, OIL, ETC.	$80	$80	$80	$80	$80	$80
ENTERTAINMENT	$60	$60	$60	$60	$135	$60
CLOTHING	$50	$50	$50	$50	$150	$50
MISCELLANEOUS	$5	$5	$5	$5	$5	$5
TOTAL EXPENDITURES	$195	$345	$195	$195	$370	$195
ENDING BALANCE	$290	$155	$220	$35	($325)	($510)

LESSON TITLE: CULMINATING ACTIVITY

OBJECTIVES: To formulate a problem to solve on the spread-
                   sheet.
                 To organize and create a spreadsheet.
                 To integrate all previous objectives.

TEACHING AIDS AND REFERENCES:

   Handouts: Culminating Activity--Creative Thinking

TEACHING OUTLINE:

1.   Distribute Creative Thinking Project. The student should
     generate and design a problem. The setup and organization
     should follow the guidelines in the instructions. The
     criteria that should be used in evaluation would be (1)
     following instructions in the learning activity and (2)
     organizing the setup in an easily readable form.

     HINTS:

     Some suggestions for possible projects are:
          personal net worth
          personal income statement
          projected profit and loss statement
          cash flow
          depreciation schedule
          payroll
          balance sheet
          aging of accounts receivable
          breakeven analysis
          tax problem
          inventory
          ratio analysis
          pricing model
          stock portfolio analysis

MATERIALS NEEDED/OUTCOMES:

     1.   Creative Thinking Project.

     2.   Reference Manual for Spreadsheet Program.

CREATIVE THINKING

1. Create your own project. Suggestions: Sports, Averages, Calorie Counter, Tic Tac Toe, Payroll, etc.

2. Must have at least 5 columns.

3. Use at least two different formats.

4. Must use at least 2 different function commands. The more functions you use, the more points you receive.

5. Must use the window command (split the window).

6. Use various options---underlining, borders, commas, single and double rules. The more options you use, the more points you receive.

7. Use your imagination and creativity. Create something of which you will be proud.

8. Limitation: NO two programs can look alike (or similar). Each group of pairs MUST be different.

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