

COMPUTER FUNDAMENTALS
EDU 201
Module Six
Class Objectives

Module Six: Information Management– Skills to be developed: keyboarding, use of basic spreadsheets for instruction and information management. Student will complete spreadsheet tasks with 80% accuracy as determined using an analytic scoring rubric.

The student will be able to:

1. Identify strategies and technologies that support individual learning styles and special needs.
2. Evaluate a variety of technologies for potential and capacity to enhance learning.
3. Use PC hardware and OS, Microsoft Office software and imaging peripherals to support learning and research.
4. Identify current changes in information technologies and assess the impact of change on education and society.
5. Identify information technologies as powerful tools for accessing information needed to solve relevant problems.
6. Develop and refine knowledge, skills and dispositions toward technologies in education.
7. Use productivity software to prepare publications and produce creative works.
8. Use technology tools to manage and communicate information.

Module Six Rubric:

Student Name:						
Directions: Rate student performance on each task.						
Spreadsheet:						
Open new workbook and save as an Excel file.	0	2	4	6	8	10
Display elements of a problem in a grid.	0	2	4	6	8	10
Label columns and rows to describe data sets.	0	2	4	6	8	10
Enter data in columns and rows.	0	2	4	6	8	10
Size columns and rows.	0	2	4	6	8	10
Create formula using =.	0	2	4	6	8	10
Create formula using AutoSum function.	0	2	4	6	8	10
Create list using AutoFill function.	0	2	4	6	8	10
Create a data chart and add to spreadsheet.	0	2	4	6	8	10
Add clip art to spreadsheet.	0	2	4	6	8	10
Total Points:						

Information Management

Information management becomes increasingly important as volumes of data become accessible for use in problem solving. Learning focused on higher order thinking skills will consistently require students to analyze, synthesize and draw conclusions based on evaluation of data. The spreadsheet, an electronic grid of columns and rows, allows the user to unfold, stretch, or spread out data for manipulation, analysis and reflection. This powerful information management tool allows students to gather, display and change data while seeking solutions to relevant problems.

Module Six introduces basic spreadsheet concepts in the context of a real problem. Students will analyze data and “lay out” the problem in a spreadsheet. They will create formulas for subtotals and totals and will discover the solution based on mathematical logic.

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Activity One

Information Management:

Rationale: Tasks that previously required tedious effort can be completed efficiently and accurately through the use of spreadsheets. The spreadsheet is a useful grade management tool for teachers and is an efficient learning tool for students of all ages.

Task: Use a spreadsheet to display information on a grid, enter data, create formulas, perform calculations, analyze data and solve problems.

Activity: Open the *St. Ives* file in Module Six. This fun-filled activity familiarizes students with basic spreadsheet functions and demonstrates the power of this tool for critical thinking, problem solving and making mathematical connections.

Related Online Activities and Resources:

[Excel 2000 Tutorial](#) - Microsoft's website [Office Tips for Teachers](#) offers a comprehensive Microsoft Excel tutorial for download. Store this file on your computer for quick reference.

[Microsoft Excel AutoFill Feature](#) – Use this step-by-step tutorial to learn to use the helpful AutoFill feature. Automatically fill a group of cells with a sequence of numbers, range of dates, range of times.

[Share Excel Data with Other Office Applications:](#) These quick tips will teach you to create a chart in Excel and copy and paste it into Microsoft PowerPoint and Microsoft Word 2000.

[Drawing Conclusions:](#) Practice filtering Microsoft Excel spreadsheet data to see patterns, make generalizations, draw conclusions and make comparisons.

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Activity Two

Information Management:

Rationale: Some mathematical problems require many steps that necessitate tedious, detailed computation. The margin for error in these problems is great, as one mistake can result in an inaccurate solution. Spreadsheets provide a computational palette that supports learners throughout the steps in the problem-solving process.

Task: Use a spreadsheet to unfold and solve multiple parts of a detailed problem.

Activity: Open the *Twelve Days* file in Module Six. Students will use a spreadsheet to unlock the mathematical mysteries of the song by determining the number of gifts presented on each of the twelve days of Christmas and the grand total.

Related Online Activities and Resources:

Have you ever wondered about the customs that gave origin to the song "The Twelve Days of Christmas"? Students can search the web for the history of the song. Several excellent sites include:

[Drennon's Twelve Days of Christmas](#) – Enjoy a fabulous musical accompaniment as you learn the origin meaning, history and humor of this traditional Christmas song.

[Everything You Need to Know](#) - The *HowStuffWorks* staff presents a comprehensive page in response to the question, "What exactly are the twelve days of Christmas?"

[Hidden Meaning](#) – Have you wondered why anyone would give such strange gifts? This site describes the hidden meanings of the song.

[A Religious Explanation](#) – Contrary to popular belief, these are not the twelve days *before* Christmas, but in the Western Church are the

twelve days from Christmas until the beginning of [Epiphany](#) (January 6th; the 12 days count from December 25th until January 5th).

As I Was Going To St. Ives



This activity is grounded in an age-old problem posed by Mother Goose in the rhyme *"As I Was Going To St. Ives"*.

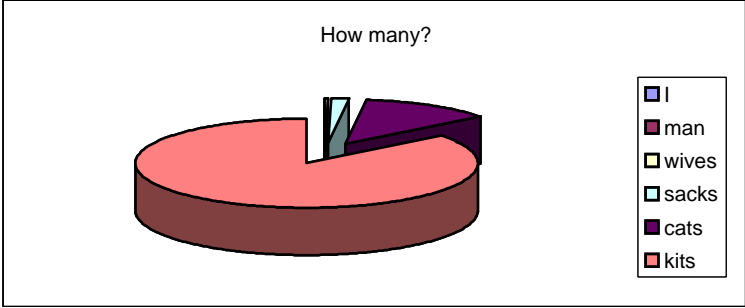
**As I was going to St. Ives,
I met a man with seven wives:
Every wife had seven sacks,
Every sack had seven cats,
Every cat had seven kits;
Kits, cats, sacks, and wives,
How many were going to St. Ives?**

1. Open Microsoft Excel to display Sheet One of a new workbook.
2. The first step in problem solving with a spreadsheet is to spread out the problem within the columns and rows of the spreadsheet.
 - Who are the characters in this problem? Label Column A **"Characters"** in cell A-1. List the names of the characters in cells A-2 to A-7.
 - Some of the characters traveled with baggage or companions. Some traveled alone. Label Column B **"How many?"** in cell B-1. List the number of items or travelers going to St. Ives. in cells B-2 to B-7.
 - Cell B2 I = 1
 - Cell B3 Man = 1
 - Cell B4 Wives = 7
 - Cell B5 Sacks = 7*7 (enter formula)
 - Cell B6 Cats = B5*7 (enter formula)
 - Cell B7 Kits = B6*7 (enter formula)
3. Label Row A-9 **"Total"**.
4. Create a formula for the sum in Cell B-9. **=SUM(B2:B8)**
5. To add a chart, highlight cells A-1 through B-7. Select the **Insert** menu and choose the **Chart** option.
 - In the Chart Wizard dialog box, choose **Pie Graph**.
 - Under Chart Sub-type, select the **Exploded pie with 3-D visual effects**. Click **Next**.
 - Click **Next** through the next two screens. **Click Finish**.
6. To add clipart, select the **Insert** menu and choose **Clip Art**.

Characters	How many?
I	1
man	1
wives	7
sacks	49
cats	343
kits	2401
Total	2802



How Many Are Going to St. Ives?





The Twelve Days of Christmas



This activity leads students to discover how many gifts were received in the Christmas song *"The Twelve Days of Christmas"*.

1. Open Microsoft Excel to display Sheet One of a new workbook.
2. The first step in solving this problem with a spreadsheet is to spread out the problem within the columns and rows of the spreadsheet.
 - Many gifts were received over a 12-day period. In cell A-1, type **"Days"**.
 - Tap the **Tab** key to move right in the same row. In cell B-1, type 1.
 - A bold rectangle appears around cell B-1, indicating that the **Auto-fill** feature is active. Click the small square in the lower right corner. Hold and drag the rectangle right toward cell M-1. Excel fills cells C-1 – M-1 with the numbers 2- 12.
3. List the names of the gifts in cells A-2 to A-13.
 - Click cell A2. Type "Partridge in a Pear Tree".
 - Tap the **Enter** key to move to cell A3. Type "Turtledoves".
 - Tap Enter to move to cell A4. Type "French Hens".
 - Cell A5 Calling Birds
 - Cell A6 Gold Rings
 - Cell A7 Geese a-Laying
 - Cell A8 Swans A-Swimming
 - Cell A9 Maids A-Milking
 - Cell A10 Ladies Dancing
 - Cell A11 Lords A-Leaping
 - Cell A12 Pipers Piping
 - Cell A13 Drummers Drumming
4. The song indicates that a "Partridge in a Pear Tree" was received on each of the 12 days of Christmas. Since 1 partridge was received each day, enter 1 in cell B-2.
 - Click cell B-2, hold and drag to cell M-2 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 1 appears in cells C-2 through M-2.

5. On the second day - and on each day thereafter - two turtledoves were received. In cell C-3, type 2.
 - Click cell C-3, hold and drag to cell M-3 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 2 appears in cells D-3 through M-3.
6. On the third day - and on each day thereafter – three French hens were received. In cell D-4, type 3.
 - Click cell D-4, hold and drag to cell M-4 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 3 appears in cells E-4 through M-4.
7. On the fourth day - and on each day thereafter – 4 calling birds were received. In cell E-5, type 4.
 - Click cell E-5, hold and drag to cell M-5 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 4 appears in cells F-5 through M-5.
8. On the fifth day - and on each day thereafter – 5 calling birds were received. In cell F-6, type 5.
 - Click cell F-6, hold and drag to cell M-6 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 5 appears in cells G-6 through M-6.
9. On the sixth day - and on each day thereafter – 6 geese-a-laying were received. In cell G-7, type 6.
 - Click cell G-7, hold and drag to cell M-7 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 6 appears in cells H-7 through M-7.
10. On the seventh day - and on each day thereafter – 7 swans-a-swimming were received. In cell H-8, type 7.
 - Click cell H-8, hold and drag to cell M-8 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 7 appears in cells I-8 through M-8.
11. On the eighth day - and on each day thereafter – 8 maids-a-milking were received. In cell I-9, type 8.
 - Click cell I-9, hold and drag to cell M-9 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 8 appears in cells J-9 through M-9.
12. On the ninth day - and on each day thereafter – 9 ladies dancing were received. In cell J-10, type 9.

- Click cell J-10, hold and drag to cell M-10 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 9 appears in cells J-10 through M-10.
13. On the tenth day - and on each day thereafter – 10 lords a-leaping were received. In cell K-11, type 10.
- Click cell K-11, hold and drag to cell M-11 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 10 appears in cells L-11 through M-11.
14. On the eleventh day - and on each day thereafter – 11 pipers piping were received. In cell L-12, type 11.
- Click cell L-12, hold and drag to cell M-12 to select all cells.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The number 11 appears in cell M-12.
15. On the twelfth day 12 drummers drumming were received. Type 12 in cell M-13.
16. In column N, a formula will be entered to total the quantity of each gift received. In cell N-1, label column N “Total Each Gift”.
- Select cell N-2.
 - Click the **AutoSum** button on the formatting toolbar to automatically create a formula (SUM: B-2:M2). The formula adds all numbers in row 2 in columns B-M.
 - Tap **Enter** to activate the formula. The number 12 appears in cell N-2, indicating that 12 partridges were received.
 - Select cell N-2. Click, hold and drag down to select cells N-3 – N13.
 - Select **Edit** on the top menu bar. Select **Fill**. Select **Down**. The formula is copied down to from cell N-3 to cell N-13. The total gifts by category appear in column N.
17. In row 15, a formula will be entered to tally the number of gifts received on each day. Label cell A-15 “**Total Gifts Each Day**”.
- Select cell B-15. Enter a formula to add numbers in cells B-2 - B14. The formula (SUM: B-2:B14) adds all numbers in column B in rows 2 –14. Tap **Enter** to activate the formula. The number 1 appears in cell B-15.
 - Click cell B-15, hold and drag to cell N-15 to select all cells.

- Select **Edit** on the top menu bar. Select **Fill**. Select **Right**. The formula is copied across to from cell C-15 to cell N-15. The total gifts for each day appear in row 15. Cell N-15 displays the total gifts for 12 days.



Data Analysis:

- Look at totals in column N. What pattern(s) do you notice?
- Look at totals in row 15. What pattern(s) do you notice?
- How many total gifts were received?

Days	1	2	3	4	5	6	7	8	9	10	11	12
Partridge in a Pear Tree	1	1	1	1	1	1	1	1	1	1	1	1
Turtledoves		2	2	2	2	2	2	2	2	2	2	2
French Hens			3	3	3	3	3	3	3	3	3	3
Calling Birds				4	4	4	4	4	4	4	4	4
Gold Rings					5	5	5	5	5	5	5	5
Geese A-Laying						6	6	6	6	6	6	6
Swans a Swimming							7	7	7	7	7	7
Maids A-Milking								8	8	8	8	8
Ladies Dancing									9	9	9	9
Lords A-Leaping										10	10	10
Pipers Piping											11	11
Drummers Drumming												12

Total Gifts Each Day 1 3 6 10 15 21 28 36 45 55 66 78



Total Each Gift

12
22
30
36
40
42
42
40
36
30
22
12

364

