Quick Guide to Frequent Tasks & Keyboard Shortcuts for Spreadsheets
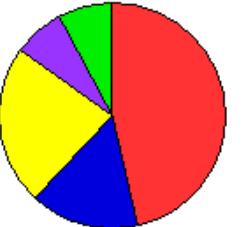
OPERATION	FORMULAS / FUNCTION	NOTES
Referencing a Cell	=A1	The letter is the column name & the number is the row name. Also know as a Relative Reference.
Absolute Reference to a Cell	=A1	Same as above, but the cell to which a formula refers will not change if you copy the formula containing it to a new cell
Defining a **Range** of cells	A1:M26	Name of cell in upper left corner of range, separated by a colon, name of cell in lower right corner of the range
Add or **Subtract**	=A1+A2 or =A1-A2	
Multiply or **Divide**	=A1*A2 or =A1/A2	**/** is called a forward slash (on the same key as ? mark)
Complex Formula contains multiple math operations	=A1*(A2+A3)	Use parenthesis to perform operations in the desired order. Omitting parenthesis, natural order of arithmetic operations takes precedence (/,*,-,+)
Total of the values of cells in a column (or a row)	=SUM(A1:A22) =SUM(A1:G1)	Quickest way to sum- highlight the desired cells plus one extra cell at the end of the series, then click menu icon Σ (sigma)
Average of column	=AVERAGE(A1:A11)	
Count the number of cells in a column that contain numbers	=COUNT(A1:A24)	=COUNTA counts cells with both letters & numbers =COUNTIF counts cells only if they meet criteria =COUNTBLANK counts cells that are empty
Largest Number	=MAX(A1:Q1)	Returns the largest value found in all the cells of a range
IF, conditional operation	=IF(D1>1Ø,*Ø.15, "no discount") =IF(C7>.93,"A", "Try again")	Three variables separated by commas. 1. is the condition that must be met. 2. is the operation to take place if #1 is met. 3. is operation to take place if #1 is not met. If the operation is to display a text string use quotes " "
Combine text strings from multiple cells into one string	=CONCATENATE(A1, B1,C1) *or* =(A1&B1&C1)	Additional text can be inserted into the string by enclosing it in quotes and treating it the same as a cell reference =CONCATENATE(A1&"desired text"&B1)
Data Entry for the cell or range to be used in a formula or function	To easily enter cell references, use the mouse to click on the cell(s) you want referenced. For a simple reference enter "=" in active cell then click on cell to be referenced. For formulas or functions- click mouse within the *edit (formula) bar* to choose the insertion point, then click desired cell or hold down left button of the mouse and highlight a range of cells for use in a function.	
Auto-Complete / Auto-Fill	Enter a formula in the first cell or enter a series of information into the first two cells (i.e. Jan. & Feb.), highlight cell(s) with left mouse button "grab and hold" the small fill handle at bottom right corner of cell. Drag the mouse to continue the series or copy incremented formulas until last cell has been filled.	

Ctrl-X Cut	**Ctrl-C** Copy	**Ctrl-V** Paste	**Ctrl-F** to Find
Ctrl-* to select an entire range of data		**Ctrl-Home** to go to cell A1	
Ctrl-End to go to the last cell in use		**Ctrl-G** to Go To ____	

Not Just for Math Anymore;
Using Spreadsheets
Across the Curriculum

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Top 10 TIPS FOR USING SPREADSHEETS

1. **Your Spread Sheet program <u>is not a Word Processor</u>.** Use your word processor and its table function when you need to layout tables, create grids, menus, forms, etc..

2. **Let the spread sheet do all of calculations and counting for you.** Never type in a number for a total or other result. Instead always use a formula so that later data changes will automatically change the result.

3. **Use Formating...Cells...Numbers to properly display times, dates, number of decimal places, percentages and currency.** Do not try to type in %, $, commas or other formatting.

4. **Put each piece of information in its own cell.** If you ever plan to Sort, Search, Filter or AutoFilter based on a piece of information, it usually is best to put it in a separate cell. If possible, try to keep all data for a given record in one row.

5. **Put each piece of information in its own cell.** It is much easier to later combine information from two or more cells (concatenate) than it is to separate information from one cell into two or more cells (parsing / "text to columns").

6. **Avoid extending data across two or more cells.**

7. **Avoid using extra rows or columns to separate information for formatting and layout**

8. **Using Cut, Copy & Paste or Auto Fill are much faster than typing/retyping.**

9. **Do not type repeating column labels for each page into your spreadsheet.** Instead using **Window...Freeze Panes** allows you to see the column headings or row names as you scroll through a large spreadsheet. **File...Page Setup** allows you to print repeating column headings on each page of document. **File...Page Setup** is also where you can change most aspects of printing, including: margins, headers/footers, page orientation and scaling (fit to page).

10. **Use Edit...Paste Special** to copy not only **formulas** or **values** but to copy **formatting** and/or **transpose columns and rows.**

FAMOUS CELLS & RANGES

Cell	Description	Cell	Description
A1	-steak sauce cell	IQ100	-average intelligence cell
AK47	-assault weapon cell	K9	-dog cell
B9	-non-malignant cell	T42	-old soft-shoe cell
C4	-explosive cell	U2	-Irish rock group cell
ET2	-Brute' cell	V8	-vegetable juice cell
F16	-fighter jet cell	AC:DC	-electric range
GO2	-destination cell	AH:HA	-discovery range
HI5	-alternate handshake cell	AM:FM	-radio range
I1:U1	-tied game cell	AP:ES	-Simian range
IC2	-double-vision cell	BY:BY	-farewell range
IM21	-legal drinking age cell	R2:D2	-android range

Are You a Spreadsheet Junkie ?

1. Your doctor recommends an IV- and you think of the last column in a worksheet.

2. You think the song "Home on the Range" refers to cell A1.

3. The numbers 256, 65,536 & 16,777,216 have special significance to you.

4. Your dog's name is "Macro" instead of "Fido".

5. You start to enter formulas when dialing the phone.

6. When you contemplate the tile floor in the bathroom, you start to see column & row headings and create ranges.

XI. Problem Solving SS

A. Can be Pre-Built or Student-Built
B. User makes decisions based on data
C. Solve for Unknown Quantity
D. Works very well with story problems and/or extended response questions
   1. "Building My Dream House"
   2. "Mystery at Arrowhead Point"
   3. "Black Box" or Guess My Function"

XII. Input vs. Output (Commerce)

A. Measure Expenditure, Income or Outcomes "Real World" Tasks
B. Often in conjunction with Economics type lesson
C. Add changing parameters & what-ifs (i.e. change in cost of materials, supply & demand, marketing success, etc.)
D. "Chocolate Factory", "My Portfolio" & "My Budget"
E. Throw in changing parameters & what-ifs

XIII. Visual- Charting/ Graphing/Diagramming/Formatting

A. Dynamic Charts (change as data in SS is changed) vs. Static Charts (chart display is fixed).
B. Choosing and/or interpreting best representation of data
   1. Chart type
   2. Scale
   3. X & Y Axes
C. Cells Used as Charts: Formatting of individual cells to display info (i.e. "Perimeter & Area")
D. Conditional Formatting to highlight cells whose contents meet specific criteria
E. Maps (i.e. Immigration)
F. Diagrams- (i.e. School)

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* Although all screen shots used in this presentation are from Microsoft Excel 2000®, most spreadsheet programs and/or versions will have similar commands/screens

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Resources & Contact Information

- Download this presentation, a PDF of this booklet & online versions of exercises or explore links to other Spreadsheet resources at **www.mogadore.net/spreadsheets**
- Download **Computer Productivity Skills** booklet, that includes: File Management, Spreadsheets. Databases & Word Processing at **www.mogadore.net/tech**

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...And all the secrets in the Universe, whisper in our ears
And all the years will come and go...
 We may never pass this way again...*

So I need to cram as much into this talk as possible

(Lyrics by James Seals & Dash Croft, 1973) from the album "**Diamond Girl**"*

Tips For Using This Booklet-

- This booklet is an outline of notes designed to accompany a live presentation and is not a complete text.

- This booklet has two sections: *Rationale* & *Design*. The presentation order and sections used can be varied based on the participants' existing spreadsheet skills and the nature of the inservice.

- For Spreadsheet Skills training, download-- **Computer Productivity Skills** from my Technology web page at www.mogadore.net/tech

- All exercises and an online version of this booklet are available at the following web page: www.mogadore.net/spreadsheets

- Please feel free to provide feed back on this booklet, the materials presented and resources used by the instructor.

I. Spreadsheet (SS) Use
A. Highly Adaptable
B. Customized to Lesson
C. Builds Problem Solving Skills

II. Adaptable To Instructional Needs
A. Can be focused on a specific subject
B. Can be focused to stress specific concepts or strands
C. Allow students to utilize multiple intelligences & multiple learning styles
D. Pre-Built vs. Student-Built
E. Scalability

III. Pre-Built vs. Student-Built
A. Pre-built
  1. Works with students unfamiliar with SS
  2. Works well with younger students with limited math or language skills
  3. Focus more time on the lesson content vs. software skills
B. Student-Built
  1. Students learn how to use SS software
  2. Allows repeat SS based projects with less teacher intervention
  3. Teaches math, problem solving and/or logical thinking
  4. Greater student "ownership" of project

IV. Scalability
A. Project can be as big or small as desired
B. Long term projects (i.e. daily temperature, stocks, etc.)

C. Concepts and products are very modular
D. Easy to expand projects
E. Combine- products of multiple projects, specific strands and/or subjects
F. Cross Curricular
G. Focus on specific portions of a larger SS one at a time with each current COS topic

V. Categories
When could you use a SS?
A. Calculation
B. Analytical/Logical
C. Statistical
D. Categorization/Grouping/Filtering
E. Sorting/Ordering
F. Look-up/Matching/Identification
G. Charting/Graphing/Diagramming
H. Classroom Management

VI. Design Types
What kinds of SS can you use?
1. Reverse Engineering
2. Automated Response
3. Tools for Measurement/ Conversion
4. Organizing Data
5. Problem Solving
6. Input vs. Output
7. Visual

VII. Reverse Engineering
A. Reverse engineering (RE) an existing static chart from textbook into a "live" SS can bring the data to life.
B. Modify data and observe how the chart changes
  1. Change, remove or add data in the SS based on various scenarios
  2. Students collect data from their own experience, community, research or experimentation.
  3. Cause & Effect- Discuss why changing the scenario changed the appearance of the chart.

VIII. Automated Response
A. Usually Pre-Built
B. Often use the IF function
C. Student inputs information & SS provides answer by changing a chart or other visual feedback
D. "Magic Money Machine", "The Change Maker", "Automatic Invoice", etc.

IX. Tools for Measurement/Conversion
A. Converting fractions to decimals
B. Reading results of Litmus Paper to find pH by using color coded SS
C. "Blank per Blank", (i.e. miles per gallon)
D. "Blank vs. Blank" (i.e. height vs. weight)
E. Change Over Time

X. Organizing Data
A. Sorting (putting in order)
  1. Menu...Data...Sort
    a. Examples-
      i. Baseball Stats
      ii. pH of Substances
B. Filtering
  1. Autofilter- Menu... Data... Filter & then Auto Filter
    a. Equivalent to Find or Query in Database
    b. Examples-
      i. 9th grade boys in French Class
      ii. Roles of characters in a story
      iii. Which Animal Group Do I Belong To?
    c. Can be used for classification (i.e. Trees, minerals, birds, musical instruments, etc.)
  2. Advanced Filtering
C. Matching
D. Finding Unique Items
E. Combining (Concatenation) or Separating (Parsing) data
F. Importing, Exporting & Reformatting data from/to outside sources (web pages, PDFs, word processing documents, databases, etc.,)
G. Conditional Formatting