

## Excel With Interactive Crossword Puzzles

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### WHY A TECHTORIAL?

#### **What will I learn today?**

You will learn how to create an interactive crossword puzzle using Microsoft Excel.

#### **What hardware and/or software does the techtorial apply to?**

Anyone with Microsoft Excel can benefit from this techtorial.

#### **Which National Educational Technology Standards for Teachers does the techtorial address?**

The techtorial will help teachers accomplish standard IIIc in particular.

Warning: This techtorial assumes a basic knowledge of Excel. If you are just learning Excel, go to What's a Techtorial and scroll to find the techtorials on using Excel.

The International Society for Technology in Education (ISTE) has developed a set of National Educational Technology Standards for Teachers. Standards or Performance Indicators are included for each techtorial to help teachers and administrators improve technology proficiency. For a complete description of the standards indicated, go to NETS for Teachers, click Standards in the menu bar on the left, and then click the arrow to the right of Standards and Performance Indicators for Teachers.

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### EXCEL WITH INTERACTIVE CROSSWORD PUZZLE

Crossword puzzles offer an engaging way for learners to review classroom concepts and information. Several tools, both online and CD-based, are available that allow teachers to create standard crossword puzzles that can be printed and completed or completed on the computer. Click here to learn about some of those tools.

For teachers who want to take the next step or for advanced students looking for a programming challenge, however, interactive crossword puzzles created with Microsoft Excel offer an exciting alternative.

With an interactive puzzle, a student's responses to a clue or instruction changes the way the puzzle looks. Interactive puzzles let students know immediately whether they've interpreted a clue correctly or incorrectly.

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### TYPING THE BASIC PUZZLE

Let's get started!

Note: The sample interactive crossword below is on U.S. presidents. If you have another topic in mind, feel free to adapt the instructions as necessary.

Open Microsoft Excel.

In cells A3 through J3 (horizontally), type the word WASHINGTON (one letter per cell: "W" in A3, "A" in B3, "S" in C3, and so on.).

In cells B3:B7, type the word ADAMS vertically.

In cells D2:D11, type the words WHITEHOUSE (no spaces).

Save your work; name the file, "USPresidentsPuzzle."

Highlight all the cells, from A1:J12.

Right click (or Control Click on a Mac) inside the highlighted area, and then left-click (or click once on a Mac) Format Cells.

Choose the Border tab and click Outline. Choose the Alignment tab and select Center in the pull down menu beneath Horizontal. Click OK.

Click outside the highlighted area to remove the highlighting.

Hold down the Control button (or the Command button on a Mac) and highlight one of the words you typed. Right click (or Control Click on a Mac) inside the highlighted area and then left click (or click once on a Mac) Format Cells.

Choose the Border tab and click Outline and then click Inside to make a box for that puzzle clue. Click OK.

Click outside the highlighted area to remove the highlighting.

Repeat steps 1-3 above for each word in your puzzle.

Save your work.

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## FINISHING THE BASIC PUZZLE

Now it's time to make your crossword puzzle look like a crossword puzzle:

Highlight a cell or a group of cells in the puzzle that do not have letters in them (cell C1 or cell E4:H11, for example).

Right click (or Control Click on a Mac) inside the highlighted area, and then left-click (or click once on a Mac) Format Cells.

Choose Patterns and choose a color for your background.

Repeat the steps above to color all the empty cells. Do not color cells with letters in them.

You also can adjust the width and height of the cells:

Highlight all cells A1:J12.

Click Format (or Format Cells on a Mac) in the menu bar.

Select Row>Height, and change the number to the desired size. (45 is a good size.) Click OK.

Click Format in the menu bar, select Column>Width, and change the width of the puzzle. (10 is a good size.) Click OK.

Save your work.

Don't worry about fitting the puzzle onto a single printed page unless you plan to print the puzzle.  
(The puzzle will not be interactive if you print it.)

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## ADDING THE PUZZLE CLUES

Now, it's time to provide students with the clues for the puzzle:

Click cell A3, click Insert in the menu bar and select Comment.

In the sticky note that appears, type the clue, "Who was the first U.S. president?"

Hit Enter.

Click cell D2, go to Insert>Comment, and type "What is the official residence of the U.S. president?"

Click cell B3, go to Insert>Comment, and type "Who was the second U.S. president?"

Save your work

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## MAKING IT INTERACTIVE

Next you need to set the conditions that will let students know whether their answers are right or wrong. In Excel, a condition tells the program that if a certain value is typed in a cell, the formatting for that cell should change.

To let students know whether an answer in the crossword puzzle is right or wrong, we want each correctly typed letter to appear green and each incorrectly typed letter to appear red. To set those conditions:

Click cell A3.

Click Format in the menu bar and select Conditional Formatting.

Click Add. You'll now see two menus, Condition 1 and Condition 2.

For Condition 1, in the drop down menu that says "between," select equal to instead, and type the letter "W" in the empty box next to it. Click Format, change the color to green, and click OK.

For Condition 2, in the drop down menu that says "between," select not equal to instead, and type the letter "W" in the empty box. Click Format, change the color to red, and click OK twice.

The "W" in cell A3 should now be green! Erase that "W" and type any letter except "W" in cell A3. Is that letter red? Then you formatted the conditions correctly.

Now, click cell B3, click Format >Conditional Formatting, and follow steps 1-5 above. This time, type the letter "A" in the empty boxes, however. Repeat steps 1-5 for every letter in every word of your puzzle. This will take a while at first, but you'll soon get into the rhythm of it!

When you finish the conditional formatting, erase all the text from your puzzle. The puzzle should now be blank, except for the colored background and the red triangles in the corner of the clue cells.

Raise your right hand, bend your right elbow, and pat your left shoulder blade with your right hand. You did it!

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## CREATE A TEMPLATE

Save your puzzle as a template so students can open the file and complete the puzzle without damaging the original file. To do that:

Click File in the menu bar and then click Save As. Next to Save as type (Format in Mac), change the type from Excel Workbook to Template. Notice that the extension is now ".xlt" not ".xls," indicating that the file is saved as a template. (Make sure the file name is still USPresidentsPuzzle.)

Save the file on a classroom computer, burn it to a disk, or place it on the server, so students can use it.

If your students are up to the challenge, invite them to follow the directions above and use Excel to create their own interactive puzzles.

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## LEARN MORE

### **Where can I get more information about how to create my own crossword puzzles?**

If you're just looking for printable crossword puzzles, check out Puzzlemaker. If you want directions for using Excel to create a simpler (non-interactive) puzzle, check out Microsoft's How-to Article.

### **Where can I get more information about using Excel in creative way?**

Check out Internet4Classroom's Excel Tutorials.

### **What's next?**

Next week's techtorial will be a reprise of the popular Editing with Microsoft Word.