**Excel Games Day**

**If you have finished all three assignments you are able to play one of the follow games.**

**Game Number 1: Battleship**

*To create the battleship game, you will primarily use formatting features. Each workbook should contain two formatted worksheets – one for the player’s own ships, and one in which to mark hits on the “enemy’s” ships.*

**Rename Sheets**

1) Click the Sheet1 tab at the bottom of your spreadsheet window. Right click to get the pop-up menu, then choose rename. Type the new name **board game**.

2) You can also double-click the sheet tab and type in the new name. Call the first sheet **Enemy Ships.**

3) Create another page that is labeled as “**My Ships”.**

4) Return to the “**Enemy Ships**” tab to begin formatting the first game board.

**Set up Game Board**

1) Adjust column width and row height to create larger, square cells.

a) Put your cursor over the column label A, and drag over to column J. **You should have columns A – J highlighted.**

b) Make **columns** A –J all 50 pxl. Use the technique of highlighting A-J and adjust the columns the same way you’d adjust just one column.

c) Make your **rows** 1-10 all 50 pxl. Follow the same technique you used with your columns.

2) **Color** the cells of the 10x10 grid and display all cell borders.

a) Highlight the range A1:J10. This should create a square 10 columns wide by 10 rows deep.

b) Using the paint bucket button on your formatting toolbar (far right), choose a light blue color to fill the highlighted area.

c) After setting a fill color, the gridlines disappear. While the game board area is still selected, use the borders button next to the paint bucket on the formatting toolbar and choose the selection for All Borders.

3) Format cell alignment so text is centered vertically and horizontally in all game board cells.

1. With the range A1:J10 still selected, go to the Format menu 🡪 Cells 🡪 Alignment tab. Choose “center” for the horizontal and vertical cell alignment.

4) Copy game board to second worksheet My Ships. Right click on the tab and select **move or copy**.

SAVE THE WORKSHEET.

**Color Ships**

1) Select the “squares” or cells where the ship should be located. Use the paint bucket on the formatting toolbar to change the fill color of those ships. Note that the ships are entered only in the My Ships worksheet.

**You may position ships, or students can enter their ships’ positions. Use the following key for number and size of ships.**

SAVE THE WORKSHEET.

**Playing the Game**

1) Two students play together, and use laptops or turn the monitors so they can not see each others’ screens.

2) Decide who goes first.

3) That player calls out the column and row – i.e. “C5”.

4) The opponent answers hit or miss.

5) On the sheet Enemy Ships **(NOT where your ships are!),** the player marks an **H** for hit, an **M** for miss, or an **HS** for **hit and sunk** (or color the cells of the sunk ship black). If you get a hit, you get a second guess.

6) Now the opponent gets to call out a column and row. The player looks at the My Ships sheet and marks an H or an M, depending on if a ship is hit or not.

The first player to sink all of the opponents’ ships is the winner.

**Game Number 2: Mastermind**

You will need:

A four digit code, composed of numbers between 1 and 10 - fewer number.

Layout:

Create a sheet that uses 9 columns. The first column should be numbered to represent the number of “tries” at breaking the code. The second – fifth columns are where students will enter their “codes”. The sixth – ninth columns are where you enter “IF” statements, and students see an “X” to indicate they have a correct number.

Use color to indicate the cells in which students will type, and use lines, borders or color over the cells where you enter the formulas to indicate if student’s number is correct.

Example:

* To save time, enter the formula in cell F2 first.

Use the Fill Handle to drag the formula ACROSS G, H and I.

* EDIT the formula in each cell so that the “=value” matches your correct code.
* Select all four cells and use the fill handle to drag down as many rows as you will allow students attempts to break the code. (Using six possible digits, a student could easily break the code in 6 tries.) It is not necessary to edit the formulas after you drag them down, since the “correct” value does not change.
* For more information on the components of the IF statement, refer to the “selftest” example provided on another page.

It would be best to “protect” the sheet, allowing students to view or type in the cells in columns B – E only. To do this, there are two parts:

1) Format the cells

a) Select the cells in which students will type their answers.

b) Go to the Format menu 􀃆 Cells 􀃆 Protection tab.

c) Click the check box for “locked”, so that the selected cells are NOT locked.

2) Protect the sheet

a) Go to the Tools Menu 🡪 Protection 🡪 Protect Sheet.

b) Add a password if desired, so students can not easily “unprotect” the sheet.

c) Under “Allow all users of this worksheet to”, click the checkbox next to “Select locked cells”, so that the only item with a checkmark in it is “Select unlocked cells”.

**Standard Conversions**

Excel can be used to practice standard conversions, or to make a reference table for common conversions. In this example, use the standard formula for converting Centigrade to Fahrenheit – a tricky formula to calculate in your head. Other examples might include Miles per hour to Kilometers per hour, inches or feet to centimeters or meters, miles to feet, etc. You might also consider making a table for a common cookie recipe: if you want half as many cookies, or twice as many as the standard recipe makes, students can convert the original cups and tablespoons to make the desired amount.

This is the formula to convert Centigrade to Fahrenheit:

9/5 x Centigrade + 32 = Fahrenheit

Using this formula, create an Excel spreadsheet that shows the Fahrenheit equivalent of all the centigrade degrees from 5-35. Think carefully how you can use the fill handle to improve your efficiency. Once designed, how fast can you create the table?

One method to try:

In column A, enter the values you wish to convert. In our example, we want equivalent

Fahrenheit degrees for the range of 5 to 35 degrees Centigrade. Enter 5 in the second row, and 6 in the third row. Click the fill handle and drag until you see 35 entered in the cell.

In row two of column B, enter your formula, but substitute the cell address A2 for the actual degrees Centigrade which are already listed in column A. The formula looks like this:

=9/5\*A2+32

Using the fill handle, drag the formula down column B until you reach 35 in column A.

How would you make a similar table to convert Fahrenheit to Centigrade?