

EXPLORING ELECTRON CONFIGURATIONS

Obtain a card with electron configurations for your group as assigned by your teacher.

Group #: _____

For each element on your card, write the last orbital notation appearing at the end of the configuration.

What is similar about the last orbital notation appearing at the end of the configuration for each element in your set?

Locate where your set of elements should be on the periodic table.

Using sticky notes, write the last orbital notation of the electron configuration for each element in your set. Use a different sticky note for each configuration. Put each sticky note where it belongs on the poster periodic table.

A blank periodic table grid with the following structure:

- Rows:** 7 main rows, plus an additional row for the f-block.
- Columns:** 18 columns in total.
- Labels:**
 - s-block:** Located above the first two columns.
 - p-block:** Located above the last six columns.
 - d-block:** Located above the middle ten columns (columns 3-12).
 - f-block:** Located below the middle ten columns (columns 3-12).
- Row Numbers:** 1 through 7 are labeled on the left side of the main grid.
- Special Markers:**
 - Asterisk (*) in row 6, column 3.
 - Hash (#) in row 7, column 3.
 - Asterisk (*) in row 1, column 17.
 - Hash (#) in row 2, column 17.

What is the relationship between the “block” size in the periodic table you’ve been using and the number of electrons that will fit in the corresponding orbital name?

What is the relationship between where an element is located within a “block” of the table and the superscripted (the exponent) number appearing at the end of the electron configuration for that element?

You don't have all of the elements' trends filled in. Do you think you can predict the last orbital notation for the elements you don't have yet? What do you think the pattern is?

Fill in the rest of the s-block and p-block elements you don't have.

If you were told Mn ended in $3d^5$, and Ag ended in $4d^9$, would that fit your original pattern? How would you have to change your pattern rules?

Fill in the d-block using the two elements provided in part b.

Ce ends in $4f^1$, and U ends in $5f^3$. Fill in the f-block using this information.

Now that your table is completely filled, what conclusions can you make about electron configuration and how the periodic table can be useful?