

Cosmic Chemistry: Understanding Elements

Computer Simulation

USER QUICK CLICKS

The concept of the periodic table and manner of its development lends itself particularly well to an interactive format. The focus of this activity is on understanding element characteristics and families, creating models, and understanding the value of technology for quickly changing and analyzing models. Before you act like Mendeleev with a computer, however, check out these user tips on how to interact!



GROUPING AND POSITIONING ELEMENT TILES

- To group elements of like characteristics, click on the element, then on a color. This will cause the element tile to change to that color. Note that there is no connection between the color choices available and the colors on the modern periodic table. This is intentional and in keeping with the goal. Experience the process and learning that comes from creating your own model that organizes the elements. You should not simply attempt to create a model that is a replica of the modern periodic table (or Mendeleev's table).
- To decide on which elements are to be grouped together, study the characteristics of the element. These characteristics are visible when the mouse passes over the element tile at the top of the table. The element groups can be assigned names in the text fields beside the colors.
- To place an element on the table, click on the element and drag it to the desired location on the grid. You will find that there are more spaces on the grid than there are elements. This is intentional, so leave a grid cell empty whenever you think it is appropriate.
- To move elements or change color groups, simply follow the same procedure originally used. Create the model that best organizes the elements by their characteristics and atomic weights.

USING THE ANALYZE BUTTON

- The "Analyze" button can be used to provide feedback regarding the assignment of elements to a group, and the sequencing (in any of a variety of directions) of all of the elements according to their atomic weights. This feedback is helpful in spotting group classifications and element positioning to which you may give further thought.
- The "Color" (or group) analyzer allows an easy comparison of the characteristics of each element that has been placed in a group, to assist in spotting those that may not "fit."
- The "Sequence" analyzer provides elements and atomic weight data correlated to the sequence selected (left to right, top to bottom, etc.), providing a useful means of determining which elements are "out of place" according to their atomic weight, an important characteristic used by Mendeleev in his original design.



- The “Element” analyzer provides a general listing of each element and the group to which it has been assigned, providing a general overview of classifications that have been made.

SAVING, PRINTING, AND RESTORING STUDENT FILES

- Save a file by clicking the “Save” button (or going to Save under the File menu). Name the file and select the location to which you wish to save. It is suggested that you create a folder into which all of your students can save their files prior to beginning the activity, in the event that you find a class unexpectedly short of time.
- Access saved student files by bringing up a new table (double-clicking “P-TABLE.EXE,” and clicking the “Restore” button (or going to Restore under the File menu). Select the desired student file, then click “open.”
- Print the table or any analysis result by clicking the “Print” button (or going to Print under the File menu).
- Clear the table to begin a new exercise by going to New under the File menu. **Caution: Make sure that you save any work that you do not want to lose before doing this!**

