

# Chemistry CP

Name: \_\_\_\_\_

Minilab: A Periodic Table of Buttons

Section: \_\_\_\_\_

Every time you say you like something or don't like it, you are putting it into a category. You have probably also developed categories of food you eat for breakfast as opposed to food you eat for dinner, clothes you wear in winter versus clothes you wear in summer. What if you went shopping in a grocery store that displayed milk next to shoe polish, next to oranges, next to hams, next to orange juice, and next to detergent? How would you ever find ice cream corn flakes, ground beef, lemonade, and bars of soap? That kind of supermarket display pretty much describes the state of chemistry in the mid-19<sup>th</sup> century. By then, chemists had identified and isolated a large number of chemical elements, but they needed a way to logically sort them into categories—much as a supermarket would group milk with ice cream, oatmeal with cornflakes, ham with ground beef, orange juice with lemonade, and detergent with soap.

Like similar items in a supermarket, some chemical elements were recognized to share similar chemical properties. The Russian chemist Dmitri Mendeleev was the first to successfully arrange the elements into a pattern according to their properties. One of the things Mendeleev did was to write down everything that was known about each element on a small card. Then he moved the cards around until he got an arrangement which showed groups of elements with similar properties. In Mendeleev's time, the periodic table was developed as a way to arrange the elements according to their chemical behavior. Today it also tells us about the structure of the atoms of those elements. By writing the properties of the elements onto separate cards and arranging them, Mendeleev made a game, and he "won" that game when he arranged the first version of what is now known as the Periodic Table of the Elements.

## Preparations

### Problem

How can we arrange a set of buttons to demonstrate periodic properties?

### Objectives

- Sort objects by their properties
- Arrange objects to show regular and repeating patterns

### Materials

Set of buttons

### Roles

- Leader \_\_\_\_\_  
Reads directions, keeps track of time, keeps group on task
- Recorder \_\_\_\_\_  
Writes out responses, hands in group project
- Assistant \_\_\_\_\_  
Gets and returns materials, supervises sharing of materials
- Presenter \_\_\_\_\_  
Shares results with class, checks answers

### Procedure

1. Examine your collection of buttons. Which buttons are similar? What properties of buttons change?
2. As a group, decide which properties you will use to place similar buttons in columns. Group the buttons according to the properties you chose.
3. As a group, decide which properties you will use to organize buttons in rows.
4. **Arrange your buttons in a grid according to the properties you selected.**



# Chemistry CP

Date: \_\_\_\_\_

Group Processing Report

Section: \_\_\_\_\_

Group Members:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Goals:	Yes	Sometimes	No
We accomplished our assignment.			
We stayed with our group.			
We gave praise to all members of the group when needed.			
We helped all group members when needed.			
We shared our materials.			
We feel all group members contributed to this assignment.			

We learned:

We re-learned:

Areas in which we could show improvement:

Comments and suggestions:

Group Signatures:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_