Periodic Table Intro: Parts of a Whole
Warm-Up

List as many items that contain the name of an element.

For example: unleaded gasoline  lithium-ion battery

As a class, we will take turns listing items to create one large class list.
What did you all come up with?

unleaded gasoline
lithium-ion battery
Agenda/Learning Objectives

- How do you sort data?
- Can you show information based on how data is organized?
- How is the Periodic Table sorted?
Let’s Talk Grids:
This is a Carroll diagram.
“A Carroll diagram is a way to sort data, such as a group of objects, shapes or numbers, based on given properties or traits in a yes/no fashion”

(Thanks Google!)

Does it make sense why the 2 in this table is all by itself?

<table>
<thead>
<tr>
<th></th>
<th>Prime</th>
<th>Not prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Even</td>
<td>2</td>
<td>4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26</td>
</tr>
<tr>
<td>Not even</td>
<td>3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41</td>
<td>1, 9, 15, 21, 25, 27, 33, 35, 39, 41, 45, 49</td>
</tr>
</tbody>
</table>
Let’s Practice Grids:
Each person needs a worksheet.

Each group needs a large whiteboard and marker.

<table>
<thead>
<tr>
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A Carroll Diagram of numbers.
“Carroll” as in the author of *Alice in Wonderland.*
Let’s Practice Grids:
Large whiteboards at the ready!
For this practice round...
  ● Copy down the categories
  ● Fill in each section with items that could go into each section
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Large whiteboards at the ready!
For this practice round...
  ● Copy down the categories
  ● Fill in each section with items that could go into each section

<table>
<thead>
<tr>
<th>Numbered Playing Card</th>
<th>Face Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Suit</td>
<td></td>
</tr>
<tr>
<td>Black Suit</td>
<td></td>
</tr>
</tbody>
</table>
Your Turn!

Large whiteboards at the ready!

- You are now going to receive a set of images. DO NOT LOSE THE PAPER CLIP.
- Create your own Carroll Diagram to sort ALL images. A “misc./other” category is not allowed.
- As you work through the images, complete the front of the worksheet.
What did you all come up with?
The main man responsible for today:

All he had to work off of was:
- Names of Elements
- Atomic Masses
- Observed properties/reactions

Dmitri Mendeleev, the “Father of the Periodic Table” circa 1869
His Inspiration:
Let’s see how this works:

What two ways are these cards sorted on screen?
See that bolded staircase? That’s what separates metals from nonmetals:

Left of the staircase = metal
Right of the staircase = nonmetal
“On” the staircase = metalloid

*1 exception
Reading a Single Square:

Pick *any* element:
A bit more vocab:

Note how Li, Na, and K all explode in water (Cs and Fr too, by the way).
The “period” comes from the fact that characteristics tend to repeat across rows.

So on the Periodic Table, rows are called **periods**. **Columns** are called **groups**, as that is the “group” of elements that behave similarly.
For Example: