



TeachEngineering

Periodic Table Intro: Parts of a Whole



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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?

un**lead**ed 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?

	Prime	Not prime
Even	2	4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26
Not even	3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41	1, 9, 15, 21, 25, 27, 33, 35, 39, 41, 45, 49

A Carroll Diagram of numbers.
“Carroll” as in the author of *Alice in Wonderland*.

Let's Practice Grids:

Each person needs a worksheet.

Each group needs a large whiteboard and marker.

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Not even	3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41	1, 9, 15, 21, 25, 27, 33, 35, 39, 41, 45, 49

A Carroll Diagram of numbers.
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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

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

	Numbered Playing Card	Face Card
Red Suit		
Black Suit		

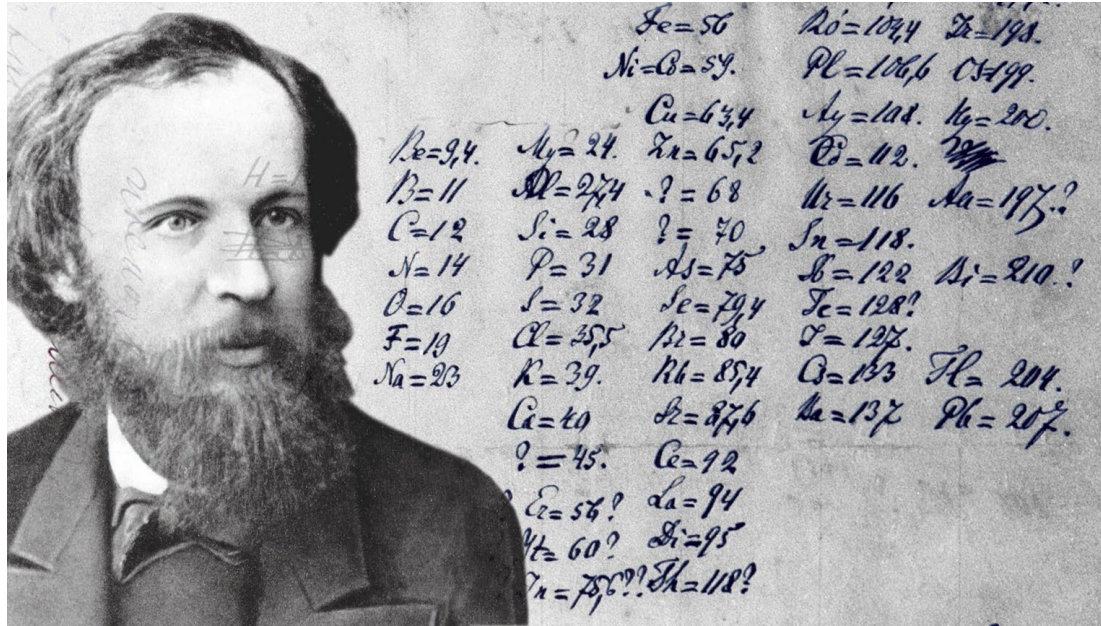
Your Turn!

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:

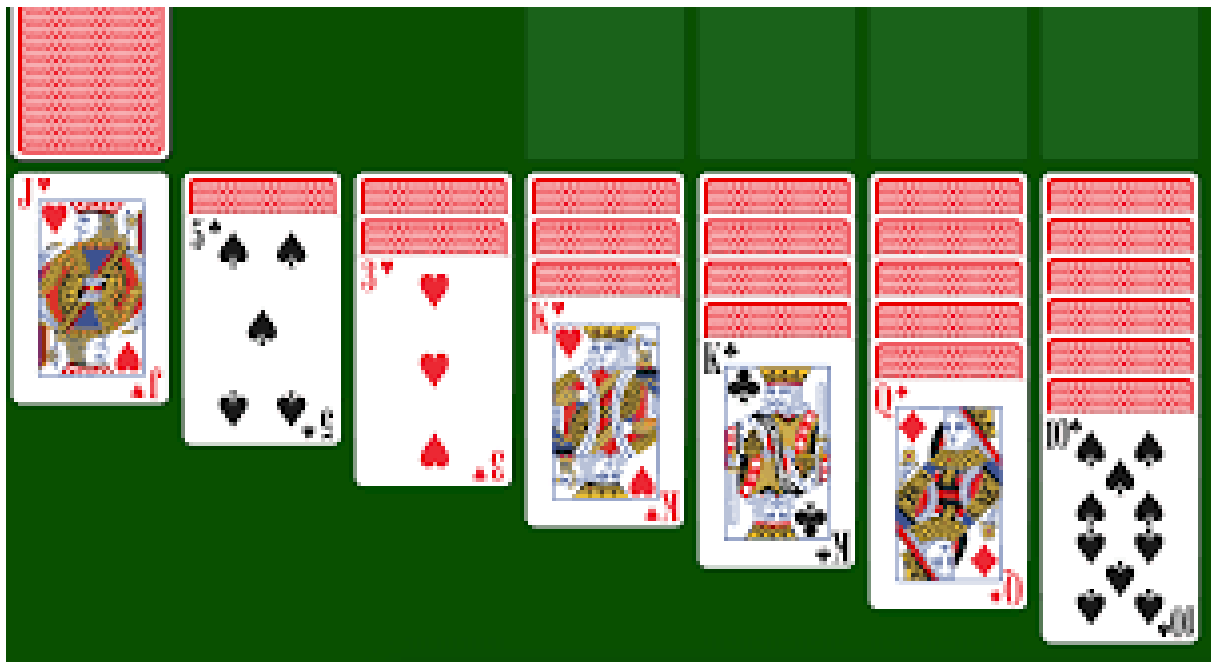


All he had to work off of was:

- Names of Elements
- Atomic Masses
- Observed properties/reactions

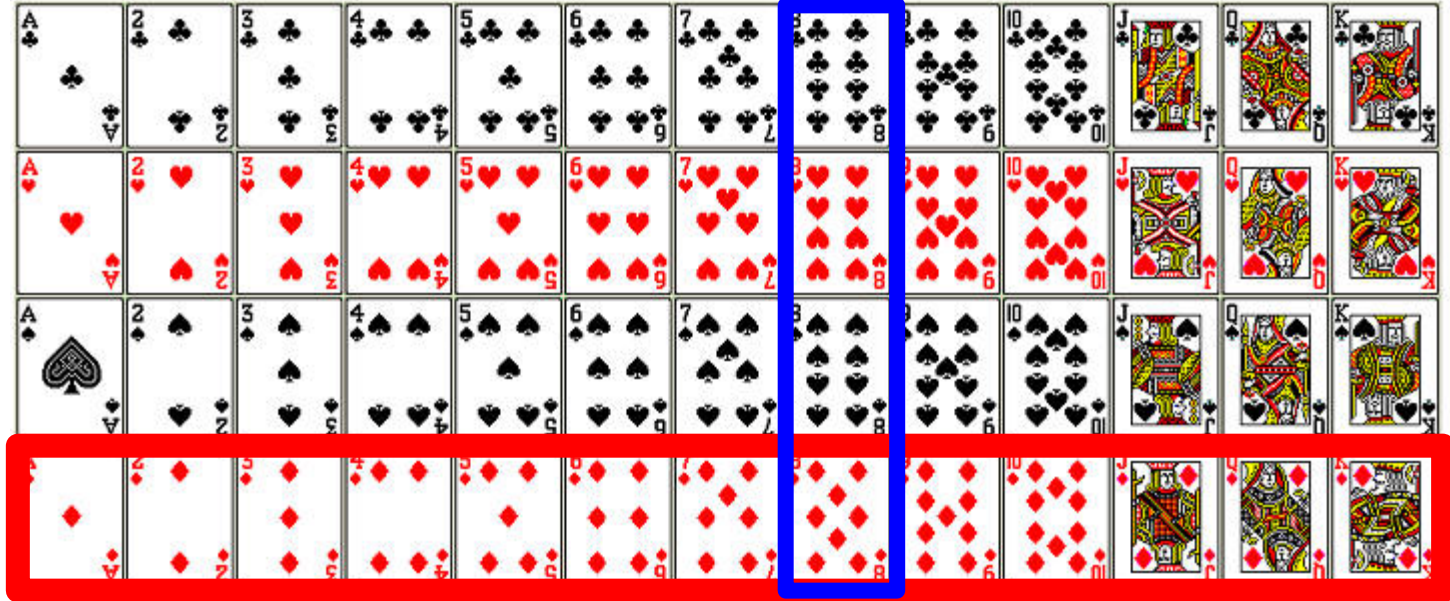
Dmitri Mendeleev, the "Father of the Periodic Table" circa 1869

His Inspiration:



Let's see how this works:

What two ways are these cards sorted on screen?



Reading a Single Square:

Pick *any* element:



?

?

?

?

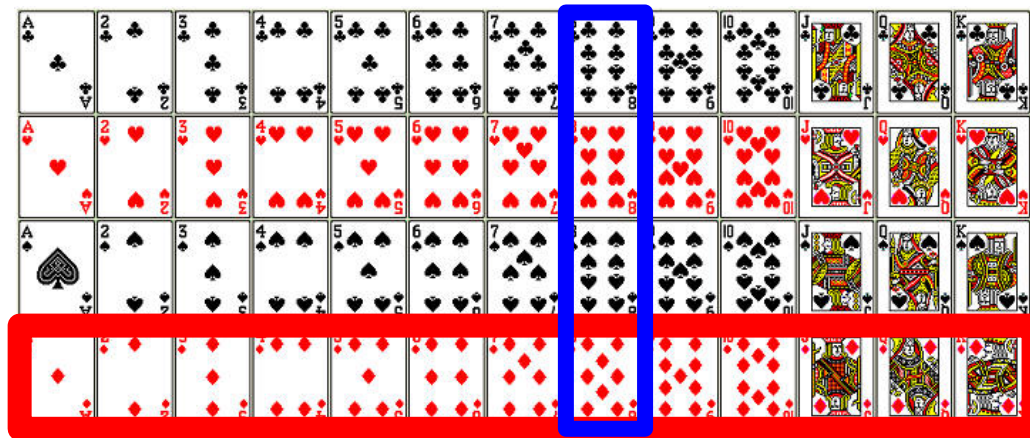
A bit more vocab:

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:

