Cross Classification

Grouping by Several Characteristics at Once

A Small Problem

- **You have 51 cards in a deck. What is the fastest way to find out which card is missing?**

NUMBERS

SUITS

- Grouping the cards by suit and by number reveals the missing card.

The Value of Classification

- Classification – grouping based on similarities (just like we did with the playing cards)

- Consider a supermarket:
  - All the dairy foods are in one section.

  - All the produce is in another section

- Grouping helps the shoppers to find what they are looking for.

Refining Classification

- Lets take a closer look at the dairy section.
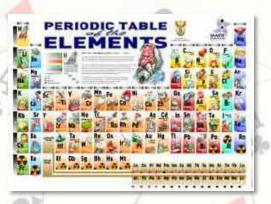
Soy milk

Skim milk

Whole milk

- There are additional classifications within the dairy section.

- Soy products can be in the produce section too! Soy fits in two classifications at once!!
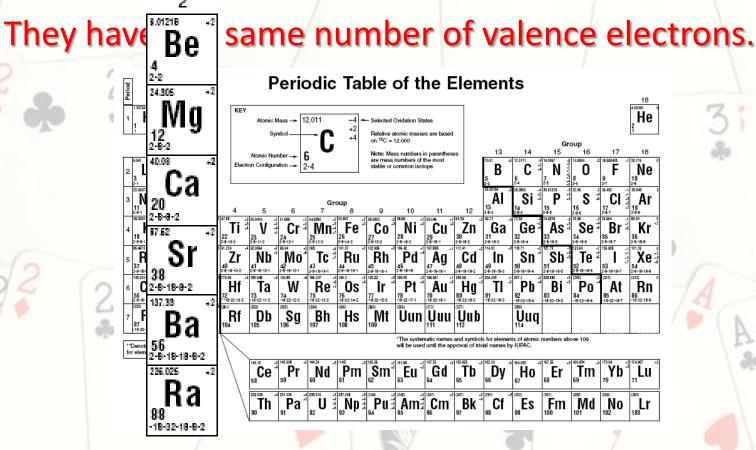
Cross Classification

- Cross Classification - classifying into more than one group at a time
- Examples
  - Deck of cards
    - ✓ Suits and Numbers
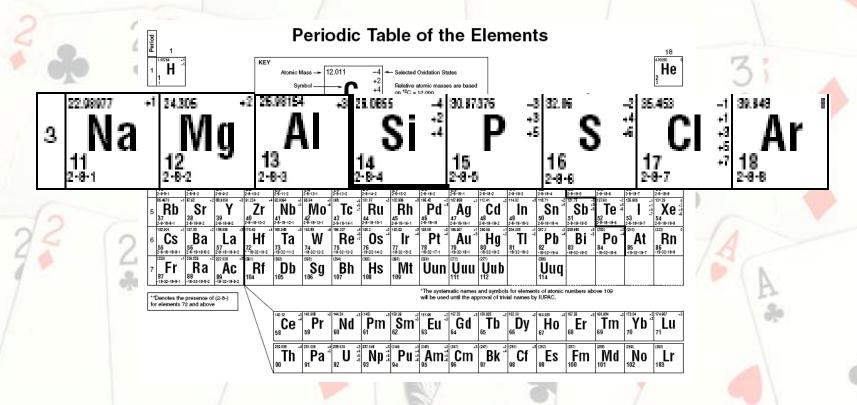 - Periodic Table
    - ✓ Groups or Families and Periods

Cross Classification on the Periodic Table

- What do the elements in a vertical column of the Periodic Table have in common?

They have the same number of valence electrons.

Cross Classification on the Periodic Table

- What do the elements in a horizontal row of the Periodic Table have in common?

They have the same number of shells.

Summary

Classification on the Periodic Table

- Vertical columns
  - Called *groups* or *families.*
  - Have elements with similar arrangements of valence electrons.

- Horizontal rows
  - Called *periods*.
  - Have elements with the same number of shells.