

ALIEN PERIODIC TABLE

Periodic Trends

Introduction:

An alien community has been discovered and they have a different way of representing the elements on their planet. What would we do if we don't know the atomic number of the element? What if we don't know what type of properties are being represented? How can we make predictions? Can you break the Alien Code?

Background:

Most physical science and chemistry textbooks report a wealth of numerical data to identify periodic trends in the properties of the elements. Ionization energies, atomic radii, electronegativity, and electron affinities – all are dutifully tabulated and graphed. But what do all the numbers mean?

The Modern Periodic Table is based on Periodic Law. This Law states that, physical and chemical properties of elements are a function of their atomic numbers. By using Periodic Law, we can find a variety of trends in both physical and chemical properties.

Within each group, all the elements in that column will be exactly the same in some way (Key Similarity) AND must also share some feature that changes regularly as you move down the group (Varying Trait). Similarly, within each period, all the elements in the row must be exactly the same as you move across the period (Key Similarity) AND must also share some feature that changes regularly as you move across the row (the Varying Trait).

Experiment Overview:

In cooperative activity, you will use the 40 cards and construct an Alien Periodic Table. You will arrange the Aliens in some logical pattern so that they form an organized regular block. The resulting table is visually impressive and clearly the meaning of periodic trends.

Materials:

- 40 alien pictures
- Large sheet of construction paper
- Crayons, colored pencils, or markers
- Scissors
- Glue
- Your Brain and some patience

Procedure:

1. Color each of the Aliens in the alien pictures.
2. Cut out each of the Aliens.
3. Arrange the pictures into eight families or groups.
4. Arrange the families into five periods.
5. Glue the Aliens onto the Alien Periodic Table. They must be glued on in their groups and periods

Questions:

1. What trends (Key Similarities and Varying Traits) did you use to distinguish the eight families?
2. What trends (Key Similarities and Varying Traits) did you use to distinguish the five periods?

