

## Periodic Table Topic Trends

In this course, you can discover and predict the most fashionable periodic properties.

### 1. THE TOPIC TRENDS FOR ATOMIC RADIUS

Atomic radius is generally stated as being the total distance from an atom's nucleus to the outermost orbital of electron.

As you begin to move across or down the periodic table, trends help us to explain how atomic radii change.

Interactive activities:

File: these-elements-are-arranged-in-49.h5p

**These elements are arranged in \_\_\_\_\_?\_\_\_\_\_**

In order to find the missing word at the titol sentence, arrange the elements by increasing order of energy shells

File: the-trend-of-atomic-radius-in-a-50.h5p

**The trend of atomic radius in a \_\_\_\_\_?\_\_\_\_\_**

To find the missing word of the titol, drag images from the left (chemical elements) to match them with their corresponding values of atomic radius

File: atomic-radius-vs-group-51.h5p

**Atomic radius vs group**

Find the word missing when regarding this chart:

As you go down in a family or group, the atomic radius \_\_\_\_\_

File: these-elements-are-arranged-in-a-52.h5p

**These elements are arranged in the same \_\_\_\_? \_\_\_\_**

Drag to arrange the images in the correct increasing family order

File: atomic-radius-vs-periods-53.h5p

**The trend of atomic radius in a \_\_\_\_? \_\_\_\_**

To find the missing word of the titol, drag images from the left (chemical elements) to match them with their corresponding atomic radius

File: atomic-radius-vs-periods-2-54.h5p

## Atomic radius vs periods

After regarding the following chart, find the word missing at the sentence:

As you go across a row, the atomic radius \_\_\_\_\_

### 2. Years and nations of the elements discovery

Find which are the nacionalities of the previous exposed pnictogens family or Nitrogen group.

ELEMENT	YEAR	COUNTRY OF DISCOVERY
N		
P		
As		
Sb		
Bi		



## 4. THE TOPIC TRENDS FOR IONIZATION ENERGY

### 4.1 IONIZATION ENERGY DEFINITION

#### File

- Ionization energy is the minimum energy required to remove an electron from an atom or ion in the gas phase.
- $X(g) + \text{energy} \rightarrow X^+(g) + e^-$  1st ionization energy
- The most common units of ionization energy are kilojoules per mole (kJ/M) or electron volts (eV), and always positive values.
- Ionization energy exhibits periodicity on the periodic table.

Fill the gaps of this excel file, here attached, in order to find these tendencies.

**File:** IonizationEnergyChart.Moodle (2)

### 4.2 Ionization Energy periodic trend

To conclude:

Fill the gaps with the appropriate word and justify why.

Fill in the missing words

As you go down a column, the ionization energy

As you go across a row, the ionization energy

File: ienergy-periodic-trend-56.h5p

## 5. THE TOPIC TREND FOR ELECTRONEGATIVITY

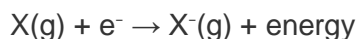
Electronegativity is a measure of how strongly atoms attract bonding electrons to themselves.

The higher the electronegativity, the greater an atom's attraction for electrons.

In fact, electronegativity is:

$$\text{Electronegativity} = (\text{Ionization Energy} + \text{Electron Affinity}) / 2$$

where electron affinity is the amount of energy *released* when an electron is attached to a neutral atom or molecule in the gaseous state to form a negative ion.<sup>[1]</sup>



By doing the following activities, you will discover the topic periodic trends for electronegativity.

[1] IUPAC, *Compendium of Chemical Terminology*, 2nd ed. (the "Gold Book") (1997). Online corrected version: (2006–) "Electron affinity". doi:10.1351/goldbook.E01977

**These elements are arranged in \_\_\_\_\_ ?? \_\_\_\_\_**

File: electro-by-groups-57.h5p

**The trend of electronegativity in a \_\_\_\_\_ ? \_\_\_\_\_**

File: the-trend-of-electronegativity-in-a-60.h5p

**Electronegativity vs group**

File: electronegativity-vs-group-61.h5p

**These elements are arranged in the same \_\_\_\_\_ ? \_\_\_\_\_**

File: these-elements-are-arranged-in-the-same-63.h5p

**The trend of electronegativity in a \_\_\_\_\_ ?? \_\_\_\_\_**

File: the-trend-of-electronegativity-in-a-2-64.h5p

**Electronegativity vs period**

File: electronegativity-vs-period-65.h5p

## **6. CRAZY TRENDS**

INCREASE / DECREASE / UP / DOWN / LEFT / RIGHT .....CRAZY PERIODIC TRENDS!!!!!!

DID YOU RECORD ALL THE PREVIOUS STATEMENTS ?????

Summary

File: summary-66.h5p

## 7. Did you know that.....

Did you know that a few chemical elements were discovered by women?

Your task;

- find which are these elements,
- the years of discovery,
- the name of these women,
- the nationality of them.