



# GYAN BHARATI SCHOOL



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**Science is a way of thinking  
much more than it is a body  
of knowledge.**

Carl Sagan

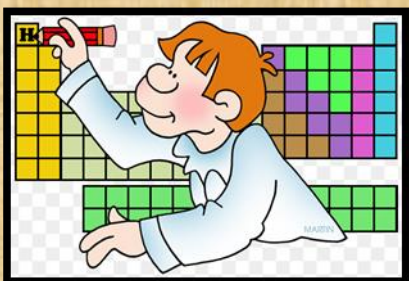


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# SCIENCE



## FACTS ABOUT PERIODIC TABLE

- ❖ *There are 118 confirmed elements in the periodic table. Among those, 90 elements can be found in nature, others are strictly man-made. Technetium was the first man-made element.*
- ❖ *Uranium is the heaviest element with an atomic weight of 238.*
- ❖ *The International Union of Pure Applied Chemistry (IUPAC) is responsible for maintaining the periodic table.*
- ❖ *The only two elements that are liquid in room temperature are mercury and bromine.*
- ❖ *Carbon is unique in that it is known to form up to 10 million different compounds. Carbon is important to the existence of life.*
- ❖ *The only letter not in the periodic table is the letter J.*

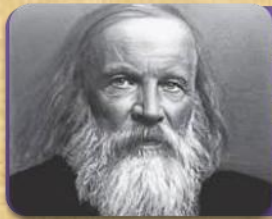
# ELEMENTS NAMED AFTER SCIENTISTS



Curium  
MARIE CURIE  
Discovered radium and polonium



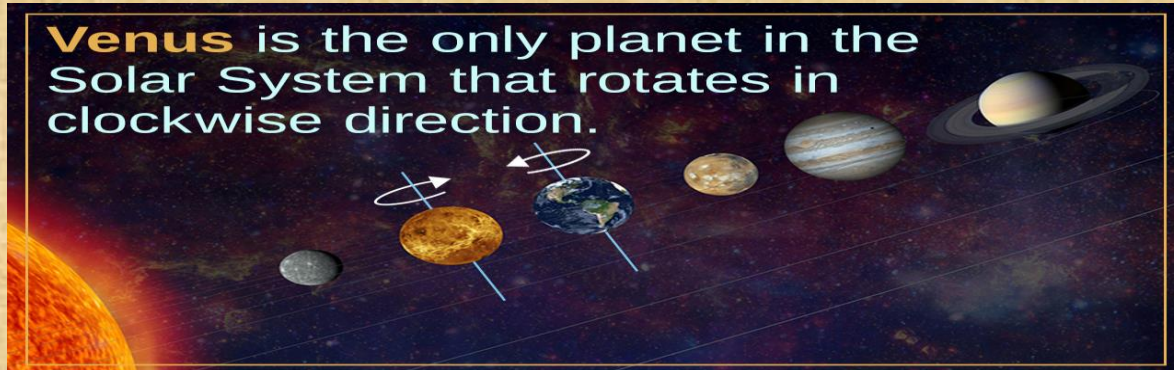
Bohrium  
NEIL BOHR  
Worked out how atoms bond



Mendelevium  
DMITRI MENDELEEV  
Invented the Periodic Table of elements



Seaborgium  
GLENN SEABORG  
Created 10 new elements



**Venus** is the only planet in the Solar System that rotates in clockwise direction.

# QUIZ

1) The atomic number of an atom is the number of \_\_\_\_\_ in the atom's nucleus.

- Electrons
- Neutrons
- Valence electrons
- Protons

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2) Elements in the same column of the Periodic Table have what in common?

- The same atomic weight
- The same number of electrons in the outermost shell
- The same total number of electrons
- The same number of electron shells
- The same melting and boiling points

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3) What are the horizontal rows of the Periodic Table called?

- Bases
- Shells
- Layers
- Periods
- Stratas

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4) What family of elements is in the right-most column of the Periodic Table?

- Alkali metals
  - Transition metals
  - Halogens
  - Actinides
  - Noble gases
-

5) What family of elements is in the left-most column of the Periodic Table?

- Alkali metals
- Transition metals
- Halogens
- Actinides
- Noble gases

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## CHEMISTRY IN EVERYDAY LIFE

### 1. Sky is Blue

An object is coloured because of the light that it reflects. The white light from the sun contains all the wavelengths, but when it impacts on an object some of its wavelengths are absorbed and some reflected. The colour of the sky can be explained considering phenomena named Rayleigh scattering that consists on the scattering of light by particles much smaller than its wavelength.

### 2. Ice Float on Water

Ice is less dense than liquid water. The heavier water displaces the lighter ice, so ice floats on top.



### 3. How Sunscreen Works?

Sunscreen combines organic and inorganic chemicals to filter the light from the sun so that less of it reaches the deeper layers of your skin. The reflective particles in sunscreen usually consist of zinc oxide or titanium oxide.



### 4. Meals are cooked faster in a Pressure Cooker

A pressure cooker has a more elaborated lid that seals the pot completely. When we heat water it boils and the steam cannot escape, so it remains inside and starts to build up the pressure. Under pressure, cooking temperatures raise much higher than under normal conditions, hence the food is cooked much faster.

### 6. Coffee keeps us awake

Coffee keeps us awake because of the presence of a chemical called adenosine, in your brain. It binds to certain receptors and slows the nerve cell activity when sleep is signaled.



# MATHEMATICS

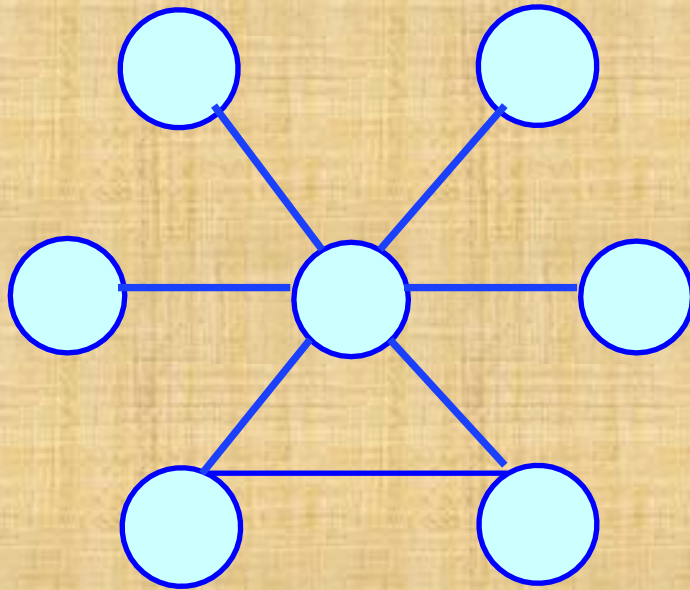
## AMAZING FACTS ABOUT 7

- ✚ *Seven, the fourth prime number, is not only a Mersenne prime (since  $2^3 - 1 = 7$ ) but also a double Mersenne prime since the exponent, 3, is itself a Mersenne prime.*
- ✚ *Seven is the lowest natural number that cannot be represented as the sum of the squares of three integers.*
- ✚ *999,999 divided by 7 is exactly 142,857. Therefore, when a vulgar fraction with 7 in the denominator is converted to a decimal expansion, the result has the same six-digit repeating sequence after the decimal point, but the sequence can start with any of those six digits. For example,  $1/7 = 0.142857\ 142857\dots$  and  $2/7 = 0.285714\ 285714\dots$*
- ✚ *A seven-sided shape is a heptagon. The regular  $n$ -gons for  $n \leq 6$  can be constructed by compass and straightedge alone, but the regular heptagon cannot. Figurate numbers representing heptagons (including seven) are called heptagonal numbers. Seven is also a centered hexagonal number.*
- ✚ *Seven is the first integer reciprocal (multiplicative inverse) with infinitely repeating sexagesimal representation.*



# Puzzle Time

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“Put the digits from 1 to 7 in the circles so that each straight line of 3 numbers adds up to the same total.”

**ANSWERS:**

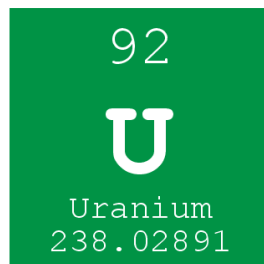
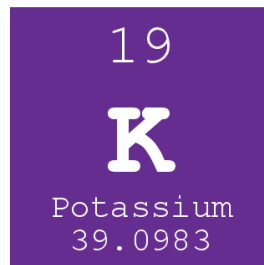
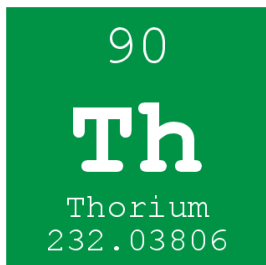
A1.Protons

A4.Noble gases

A2.The same number of electrons in the outermost shell

A3.Periods

A5.Alkali metals



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