Structure of Matter

Jan 2-8:39 AM

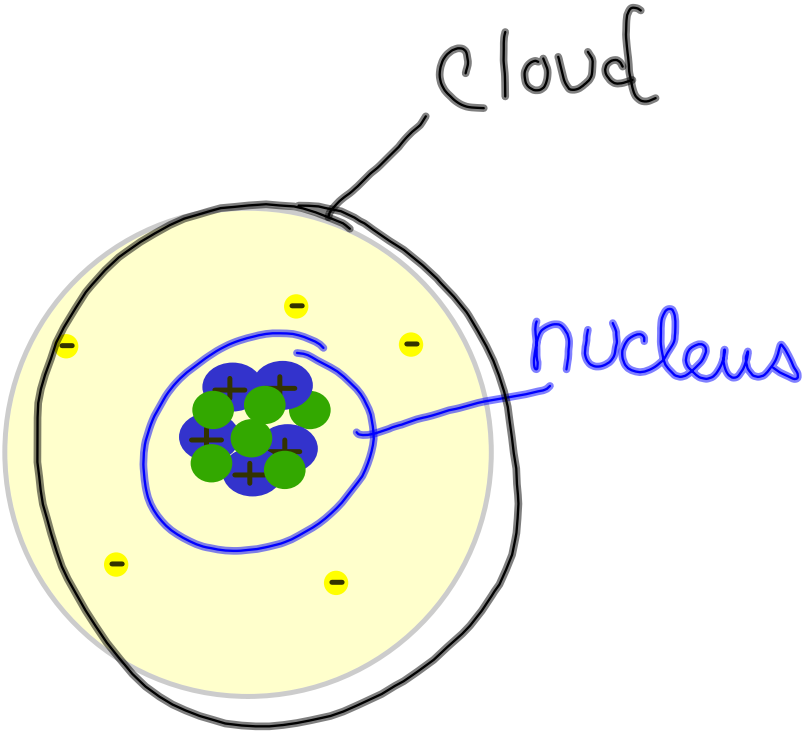
Atomic Theory- all matter is made of up of tiny particles called atoms

Jan 2-8:40 AM

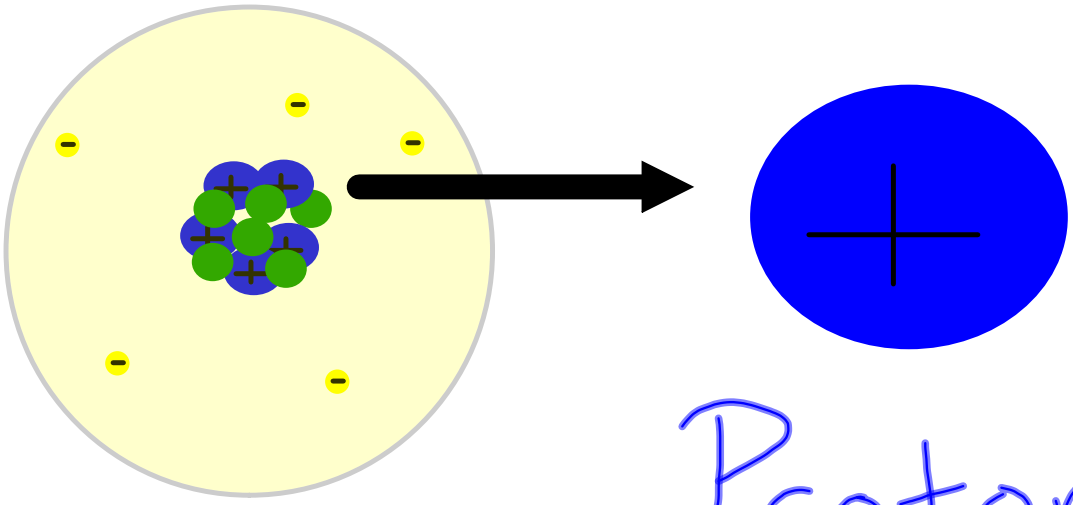
Matter- anything that has mass and takes up space.

Jan 2-8:42 AM

Atom- the smallest unit of matter

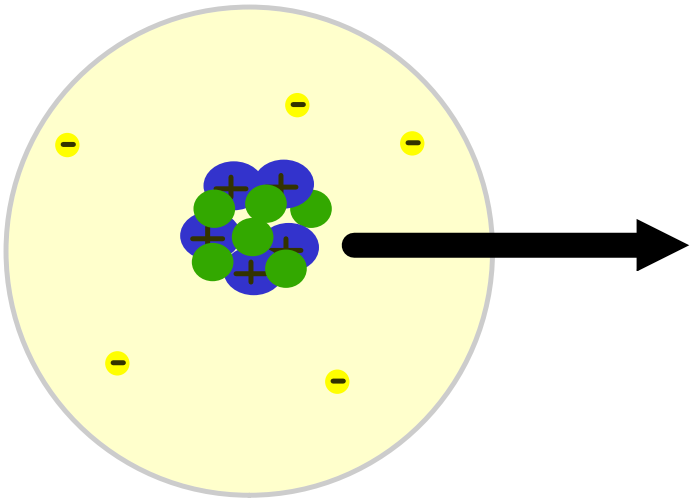


Sep 6 - 3:16 PM



Proton

postive charge



Neutron
neutral
charge

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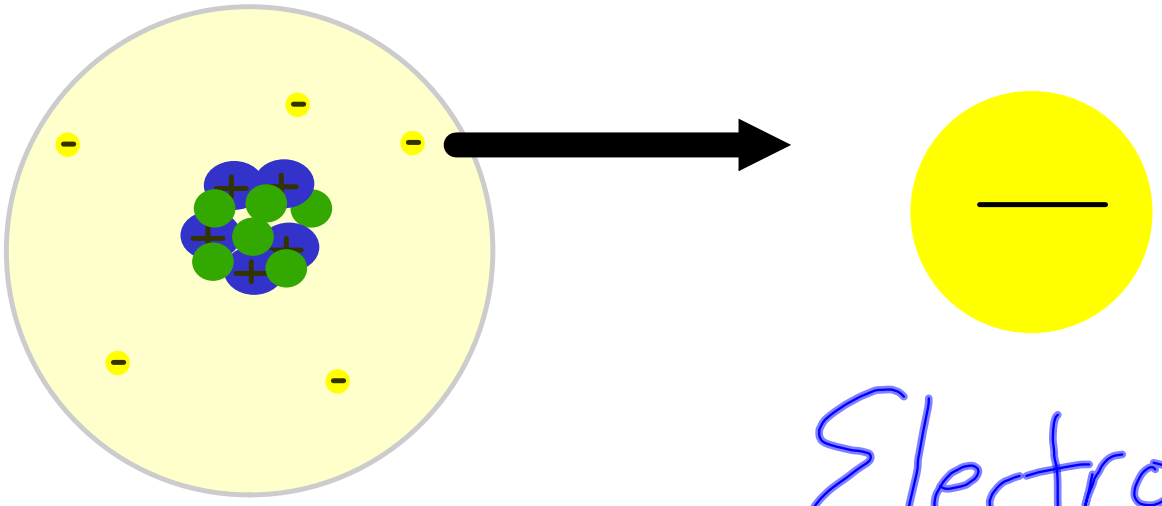

Electron

negative charge

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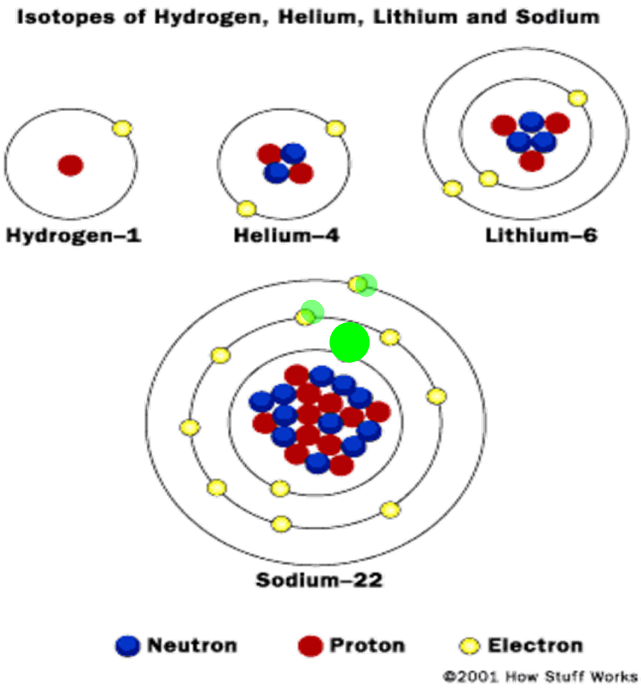
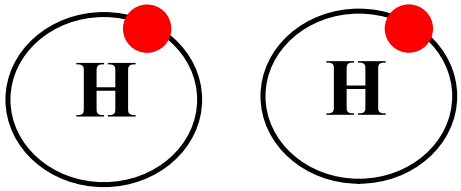
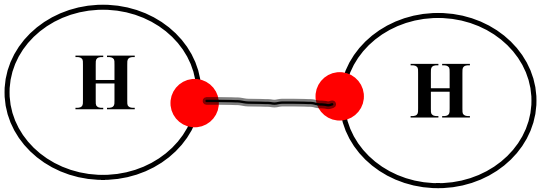
Bohr model of an atom

- Nucleus
  - Protons
  - Neutrons
- Energy Shells
  - Electrons
    - 2 in the 1st
    - 8 in the 2nd
    - 8 in the 3rd
  - Outer shell holds valence electrons



Covalent bond-when two or more elements share valence electrons.





H—H

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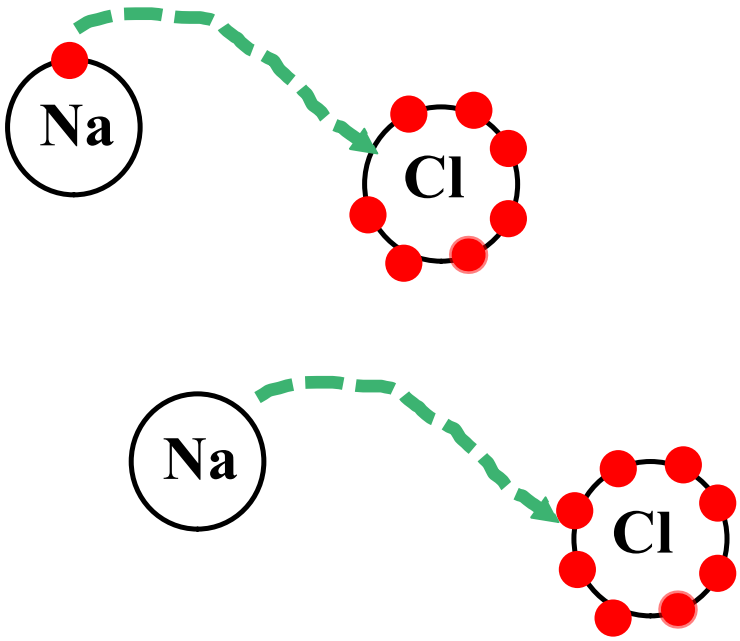
Ionic Bonds-transfer of electrons from one atom to another atom.

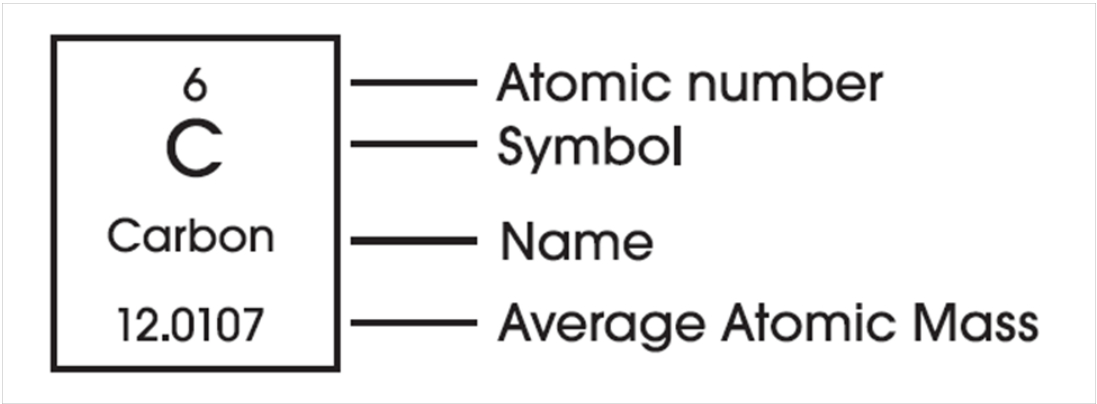
give + take



What is the atomic number of an atom and how is it determined?

Atomic number- the number of Protons

Atomic Mass- number of protons plus ~~electrons.~~ neutrons



Isotopes- atoms of elements that have different numbers of neutrons.

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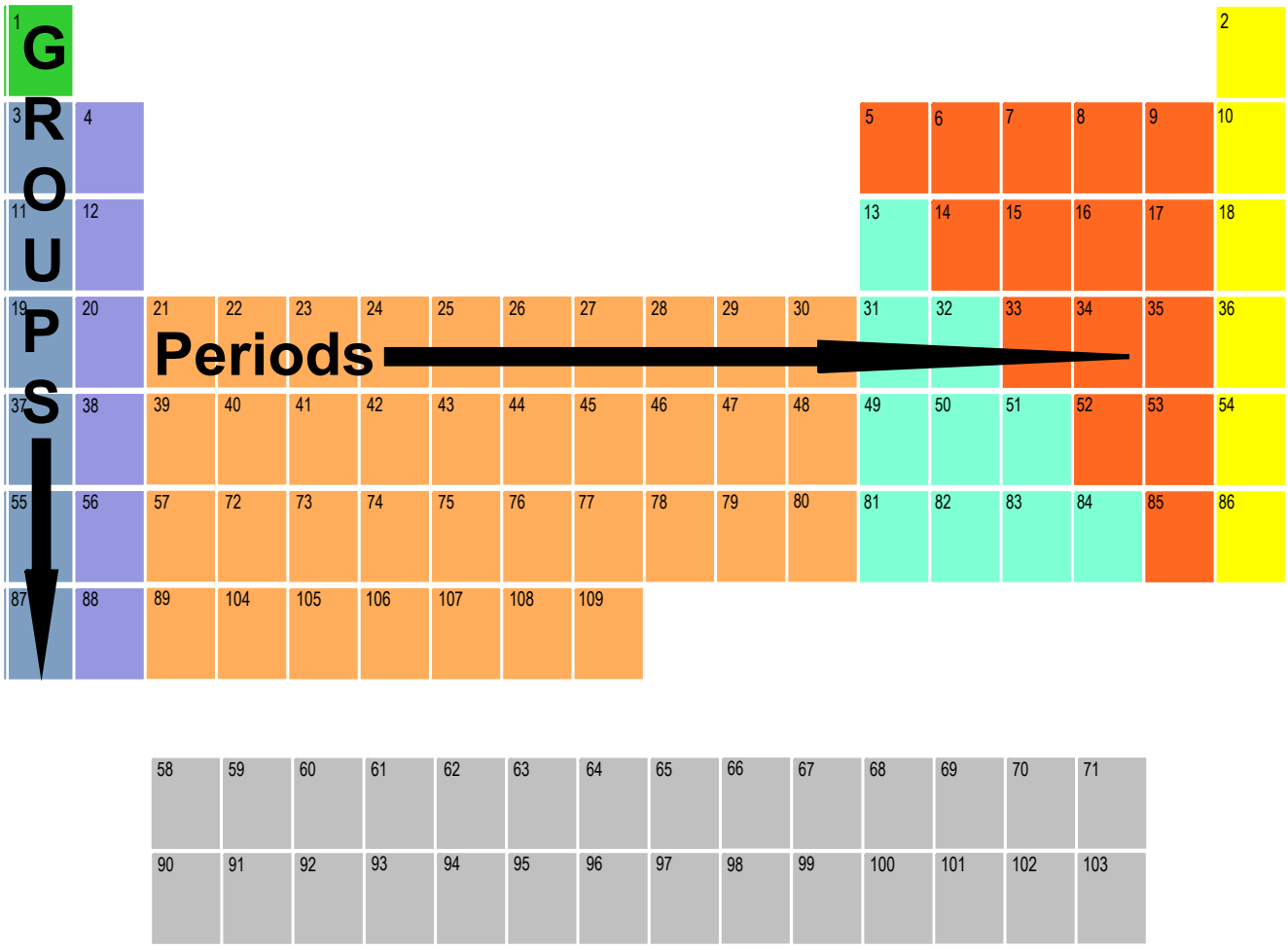
GROUPS
Periods
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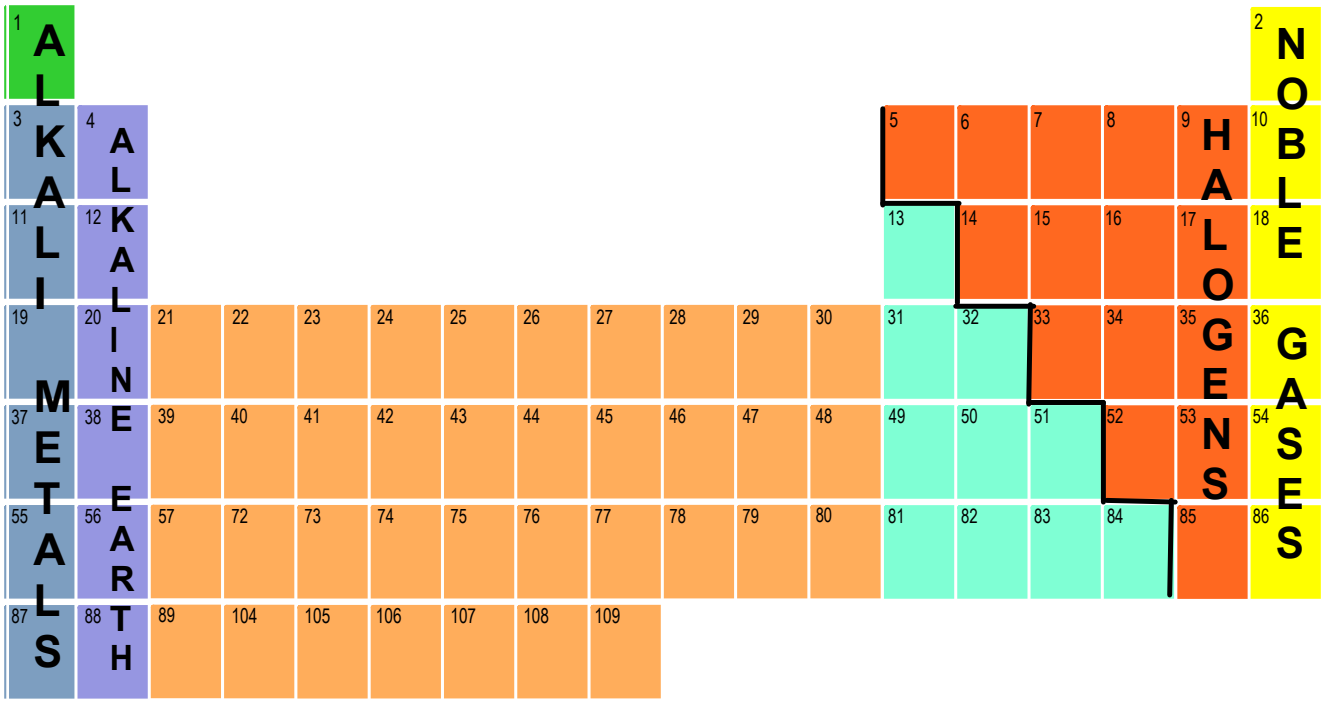
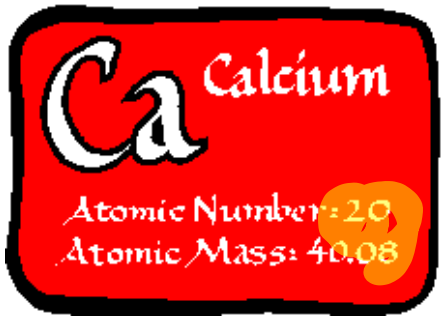


58	59	60	61	62	63	64	65	66	67	68	69	70	71
90	91	92	93	94	95	96	97	98	99	100	101	102	103

Metals

- shiny or metalic luster
- good heat conductor
- ductile
- malleable, shapeable

Some metals have a white color because they react with the air.



Non-metals

- not good heat conductors
- brittle - break easy
- dull
- not shiny

Feb 21 - 1:21 PM

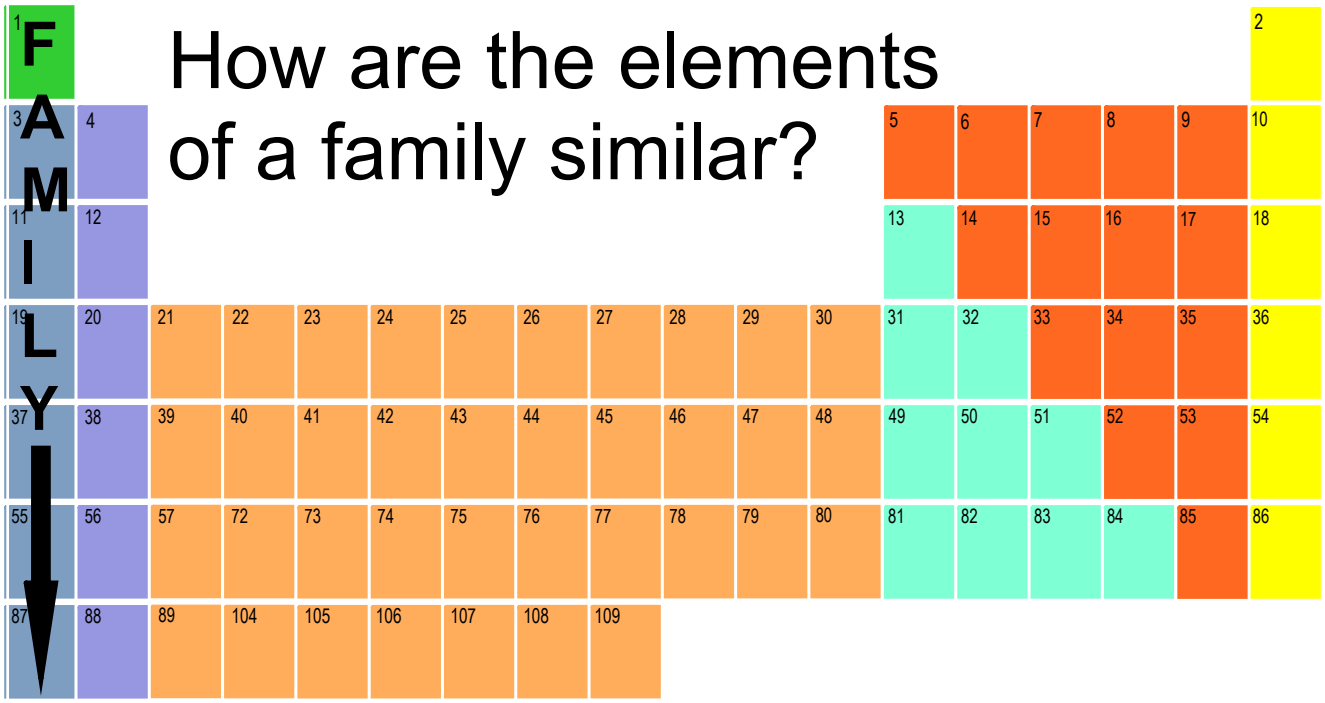
Metalloids-properties of metals and nonmetals

Many times used as a semiconductor for electricity at high temps.

Feb 21 - 1:21 PM

Questions

How are the elements of a family similar?



58	59	60	61	62	63	64	65	66	67	68	69	70	71
90	91	92	93	94	95	96	97	98	99	100	101	102	103

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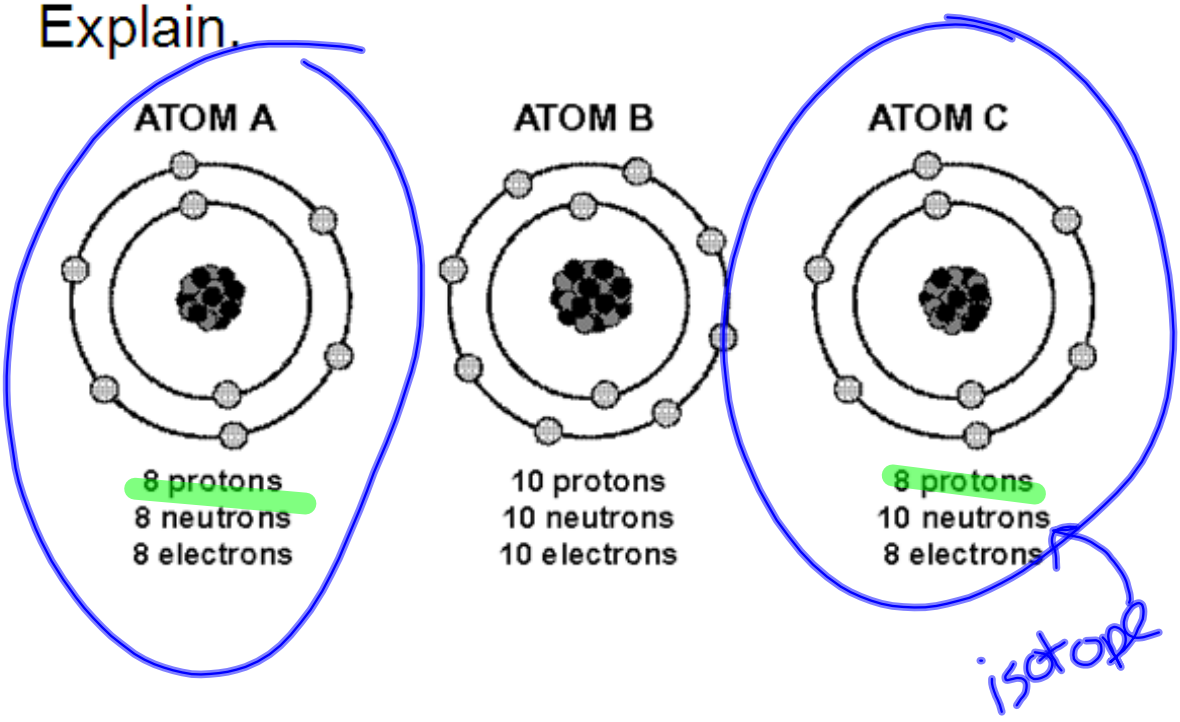
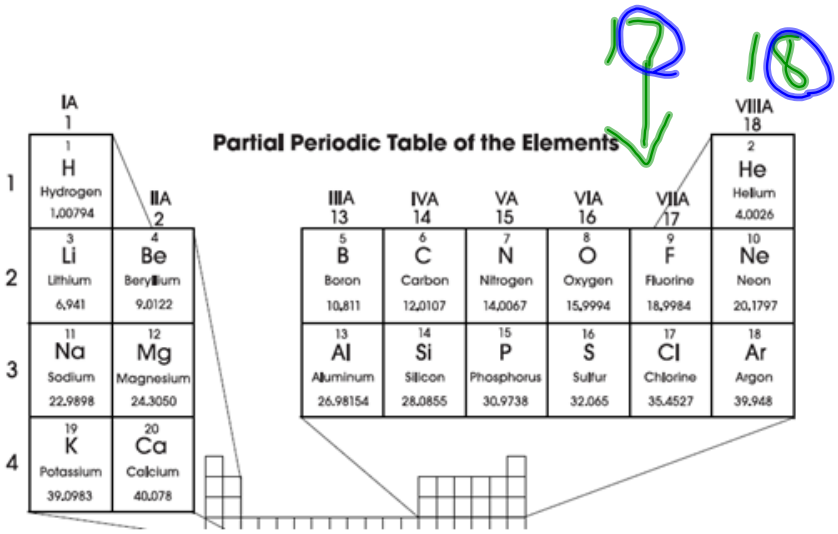
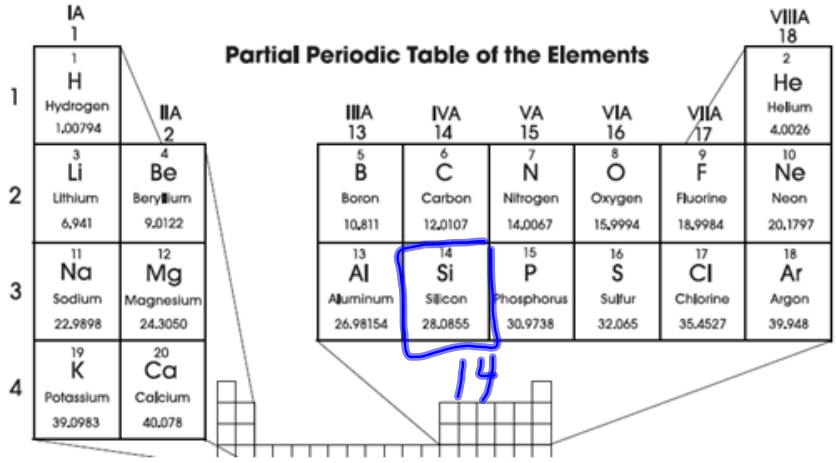
- Do any of the atom diagrams below represent atoms of the same element? Explain.





Suppose scientists discovered four new elements (W, X, Y, Z) while studying rock and soil samples brought back from a Mars mission. Which Lewis dot structure represents an element that should be placed in column VIIA (17) of the periodic table?

A. :W: B. ·X· C. :Y: D. ·Z·



A neutral atom of silicon has

A. 12 electrons.

B. 13 electrons.

C. 14 electrons.

D. 15 electrons.