

Using the Periodic Table to Determine Information About Elements

Review of Rules:

1. The atomic number tells you the number of protons.
2. Number of protons = number of electrons (assume neutral atoms).
3. Number of neutrons = atomic mass - atomic number (round to nearest whole number).
4. Number of valence electrons (electrons in outermost energy level) = group number.
5. Group number = number at top of vertical column.
6. Period number = horizontal row number (starting with #1 = H, He ; #2 = Li, Be, ... etc)
7. Number of energy levels = period number.

Referring to the periodic table, complete the following information charts:

Information on BORON	
Symbol: <u>B</u>	Atomic number: <u>5</u>
Atomic mass: <u>10.811 u</u>	Number of protons: <u>5</u>
Number of electrons: <u>5</u>	Number of neutrons: <u>6</u>
Group number: <u>III</u>	Period number: <u>2</u>
Number of energy levels: <u>2</u>	
Number of electrons in the outermost energy level: <u>3</u>	

Information on SILICON	
Symbol: <u>Si</u>	Atomic number: <u>14</u>
Atomic mass: <u>28.086 u</u>	Number of protons: <u>14</u>
Number of electrons: <u>14</u>	Number of neutrons: <u>14</u>
Group number: <u>IV</u>	Period number: <u>3</u>
Number of energy levels: <u>3</u>	
Number of electrons in the outermost energy level: <u>4</u>	

Information on CALCIUM	
Symbol: <u>Ca</u>	Atomic number: <u>20</u>
Atomic mass: <u>40.078 u</u>	Number of protons: <u>20</u>
Number of electrons: <u>20</u>	Number of neutrons: <u>20</u>
Group number: <u>II</u>	Period number: <u>4</u>
Number of energy levels: <u>4</u>	
Number of electrons in the outermost energy level: <u>2</u>	

Information on CHLORINE

Symbol: Cl Atomic number: 17
 Atomic mass: 35.453 u Number of protons: 17
 Number of electrons: 17 Number of neutrons: 18
 Group number: VII Period number: 3
 Number of energy levels: 3
 Number of electrons in the outermost energy level: 7

Information on ARGON

Symbol: Ar Atomic number: 18
 Atomic mass: 39.948 u Number of protons: 18
 Number of electrons: 18 Number of neutrons: 22
 Group number: VIII Period number: 3
 Number of energy levels: 3
 Number of electrons in the outermost energy level: 8

Information on OXYGEN

Symbol: O Atomic number: 8
 Atomic mass: 15.999 u Number of protons: 8
 Number of electrons: 8 Number of neutrons: 8
 Group number: VI Period number: 2
 Number of energy levels: 2
 Number of electrons in the outermost energy level: ~~4~~ 6

Information on NITROGEN

Symbol: N Atomic number: 7
 Atomic mass: 14.007 u Number of protons: 7
 Number of electrons: 7 Number of neutrons: 7
 Group number: V Period number: 2
 Number of energy levels: 2
 Number of electrons in the outermost energy level: 5

Information on HYDROGEN

Symbol: H Atomic number: 1
Atomic mass: 1.008 u Number of protons: 1
Number of electrons: 1 Number of neutrons: 0
Group number: 1 Period number: 1
Number of energy levels: 1
Number of electrons in the outermost energy level: 1

Information on SODIUM

Symbol: Na Atomic number: 11
Atomic mass: 22.989 u Number of protons: 11
Number of electrons: 11 Number of neutrons: 12
Group number: 1 Period number: 3
Number of energy levels: 3
Number of electrons in the outermost energy level: 1

Information on HELIUM

Symbol: He Atomic number: 2
Atomic mass: 4.003 u Number of protons: 2
Number of electrons: 2 Number of neutrons: 2
Group number: VIII Period number: 1
Number of energy levels: 1
Number of electrons in the outermost energy level: 2 (exception)