

Which of the followings are building blocks of matter?

- A. atoms
- B. molecules
- C. ions
- D. A and B only
- E. All of the above

The Periodic Table

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The periodic table is organized into groups (vertical columns) and periods (horizontal rows). Elements are color-coded as follows:

- Metals:** Light green
- Metalloids:** Light brown
- Nonmetals:** Light blue

Group																		18																											
1	2											13	14	15	16	17	18																												
1A	2A											3A	4A	5A	6A	7A	8A																												
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H	He											B	C	N	O	F	Ne																												
3	4											5	6	7	8	9	10																												
Li	Be											B	C	N	O	F	Ne																												
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Metals		<table border="1" style="width: 100%; border-collapse: collapse; text-align: center; font-size: x-small;"> <tr> <td>58</td><td>59</td><td>60</td><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td><td>71</td> </tr> <tr> <td>Ce</td><td>Pr</td><td>Nd</td><td>Pm</td><td>Sm</td><td>Eu</td><td>Gd</td><td>Tb</td><td>Dy</td><td>Ho</td><td>Er</td><td>Tm</td><td>Yb</td><td>Lu</td> </tr> </table>																58	59	60	61	62	63	64	65	66	67	68	69	70	71	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
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Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu																																
Metalloids		<table border="1" style="width: 100%; border-collapse: collapse; text-align: center; font-size: x-small;"> <tr> <td>90</td><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td><td>101</td><td>102</td><td>103</td> </tr> <tr> <td>Th</td><td>Pa</td><td>U</td><td>Np</td><td>Pu</td><td>Am</td><td>Cm</td><td>Bk</td><td>Cf</td><td>Es</td><td>Fm</td><td>Md</td><td>No</td><td>Lr</td> </tr> </table>																90	91	92	93	94	95	96	97	98	99	100	101	102	103	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
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Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr																																
Nonmetals																																													

All Group 18 elements consist of atoms

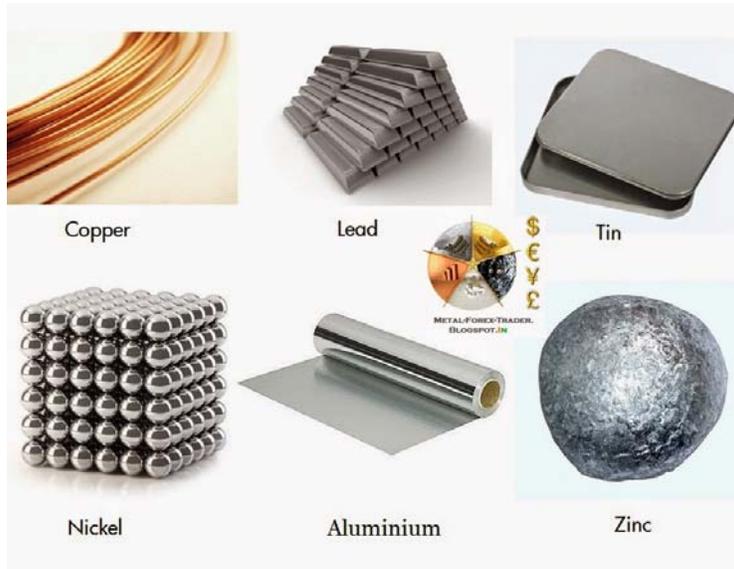
Helium



Neon



All metals consist of Atoms



What are the sub-atomic particles that make up atom?

- A. proton
- B. neutron
- C. electron
- D.A and B
- E. A, B & C

Where are the sub-atomic particles located inside an atom?

- A. Protons and neutrons are clustered in the nucleus, electrons orbit the nucleus.
- B. Protons and electrons are clustered in the nucleus, neutrons orbit the nucleus.
- C. Neutrons and electrons are clustered in the nucleus, protons orbit the nucleus.
- D. Protons, neutrons and electrons are distributed evenly throughout the atom.

What are the electrical charges of proton, neutron and electron, respectively?

- A. Proton: +1 neutron: 0 electron: -1
- B. Proton: +1 neutron: -1 electron: 0
- C. Proton: -1 neutron: 0, electron: +1
- D. Proton: -1 neutron: +1, electron: 0

For any neutral atom, which of the following is ALWAYS true?

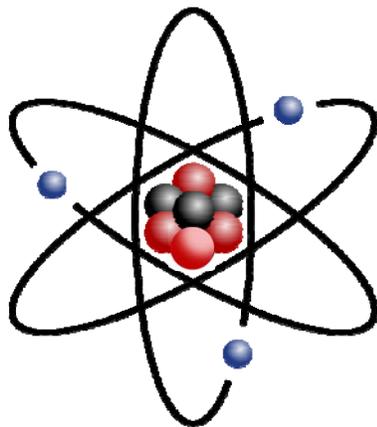
- A. number of protons = number of neutrons
- B. number of neutrons = number of electrons
- C. number of protons = number of electrons
- D. number of protons + number of neutrons = number of electrons

**Relative size of nucleus and the space
outside of nucleus in an atom**



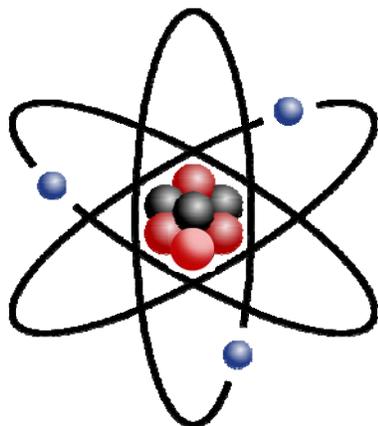
“If an atom were blown up to the size of a football stadium, the nucleus would be the size of a grain of sand in the middle of the 50-yd line. The electrons would be found somewhere else within the stadium.”

**If the picture below depicts a neutral atom,
what element would it be?**



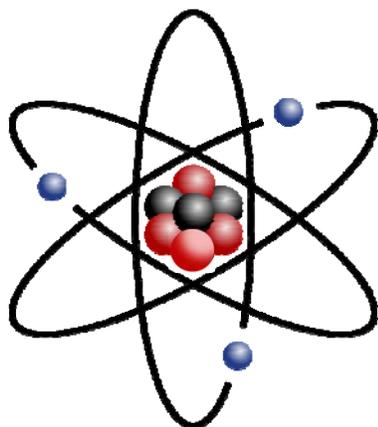
- A. nitrogen (N)
- B. beryllium (Be)
- C. lithium (Li)
- D. Not enough information

If the red balls in the picture below represent protons, what element would it be?



- A. nitrogen (N)
- B. beryllium (Be)
- C. lithium (Li)
- D. Not enough information

If the red balls in the picture below represent protons, what is depicted in the picture?



- A. *Be* ion with +1 charge
- B. *Be* ion with -1 charge
- C. neutral *Li* atom
- D. Not enough information