



Atoms forming ions

1. Complete each description below with the correct word from the box.

full outer shell	nucleus	atom	electrons	ion
------------------	---------	------	-----------	-----

- (a) The _____ is the part of the atom that contains protons and neutrons.
- (b) The _____ orbit around the outside of the atom and can be gained or lost.
- (c) An _____ is more stable than an atom.
- (d) A _____ means there are two or eight electrons in the valence shell.
- (e) An _____ never has a charge and has equal amounts of protons and electrons.

2. Complete the table below.

	Atomic symbol	Atomic number	Number of protons	Number of electrons	Electron arrangement	Charge
(a)	He	2				0
(b)	Al	13				
(c)	Mg		12			
(d)	Mg		12			+2
(e)	F	9				
(f)	O	8				-2
(g)	Li	3				
(h)	N		7			0

3. Complete this table to outline the trends in atoms forming ions.

	Number of electrons in the valence shell	Number of electrons gained or lost	Charge on the ion formed
(a)	1		
(b)	3		
(c)	5		
(d)	7		
(e)	Metals		
(f)	Non-metals		

4. Sodium (atomic number 11) and potassium (atomic number 19) are both in the same group on the periodic table and form +1 ions. In your book, give their electron arrangement and explain how the number of electrons in their valence shells can be determined from the fact they are in group 1 of the periodic table.
5. In your book, explain whether bromine tends to lose or gain electrons to form an ion.