

Atoms, subatomic particles, and electronic configurations

Your task

Use your periodic table to help you complete the table of information below.

Remember:

- all chemical symbols consist of one or two letters (the first letter is always a capital letter)
- the bottom number in each full symbol is the number of protons in the element's atoms
- the number of neutrons is equal to the top number minus the bottom number
- the number of electrons in an atom is the same as the number of protons
- the electronic configuration is linked to the element's position in the periodic table.

One row has been done for you.

Element name	Symbol	Number of protons	Number of neutrons	Number of electrons	Electronic configuration
	${}^1_1\text{H}$				
	${}^4_2\text{He}$				
	${}^7_3\text{Li}$				
	${}^9_4\text{Be}$				
	${}^{11}_5\text{B}$				
	${}^{12}_6\text{C}$				
	${}^{14}_7\text{N}$				
	${}^{16}_8\text{O}$				
	${}^{19}_9\text{F}$				
	${}^{20}_{10}\text{Ne}$				
	${}^{23}_{11}\text{Na}$				
	${}^{24}_{12}\text{Mg}$				
aluminium	${}^{27}_{13}\text{Al}$	13	$27 - 13 = 14$	13	2.8.3
	${}^{28}_{14}\text{Si}$				
	${}^{31}_{15}\text{P}$				
	${}^{32}_{16}\text{S}$				
	${}^{35}_{17}\text{Cl}$				
	${}^{40}_{18}\text{Ar}$				
	${}^{39}_{19}\text{K}$				
	${}^{40}_{20}\text{Ca}$				

Atoms, subatomic particles, and electronic configurations – ANSWERS

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Element name	Symbol	Number of protons	Number of neutrons	Number of electrons	Electronic configuration
hydrogen	${}^1_1\text{H}$	1	$1 - 1 = 0$	1	1
helium	${}^4_2\text{He}$	2	$4 - 2 = 2$	2	2
lithium	${}^7_3\text{Li}$	3	$7 - 3 = 4$	3	2.1
beryllium	${}^9_4\text{Be}$	4	$9 - 4 = 5$	4	2.2
boron	${}^{11}_5\text{B}$	5	$11 - 4 = 7$	5	2.3
carbon	${}^{12}_6\text{C}$	6	$12 - 6 = 6$	6	2.4
nitrogen	${}^{14}_7\text{N}$	7	$14 - 7 = 7$	7	2.5
oxygen	${}^{16}_8\text{O}$	8	$16 - 8 = 8$	8	2.6
fluorine	${}^{19}_9\text{F}$	9	$19 - 9 = 10$	9	2.7
neon	${}^{20}_{10}\text{Ne}$	10	$20 - 10 = 10$	10	2.8
sodium	${}^{23}_{11}\text{Na}$	11	$23 - 11 = 12$	11	2.8.1
magnesium	${}^{24}_{12}\text{Mg}$	12	$24 - 12 = 12$	12	2.8.2
aluminium	${}^{27}_{13}\text{Al}$	13	$27 - 13 = 14$	13	2.8.3
silicon	${}^{28}_{14}\text{Si}$	14	$28 - 14 = 14$	14	2.8.4
phosphorus	${}^{31}_{15}\text{P}$	15	$31 - 15 = 16$	15	2.8.5
sulfur	${}^{32}_{16}\text{S}$	16	$32 - 16 = 16$	16	2.8.6
chlorine	${}^{35}_{17}\text{Cl}$	17	$35 - 17 = 18$	17	2.8.7
argon	${}^{40}_{18}\text{Ar}$	18	$40 - 18 = 22$	18	2.8.8
potassium	${}^{39}_{19}\text{K}$	19	$39 - 19 = 20$	19	2.8.8.1
calcium	${}^{40}_{20}\text{Ca}$	20	$40 - 20 = 20$	20	2.8.8.2