



Element	Symbol	Z	Electron Configuration	1s	2s	2p	3s	3p	3d	4s	4p	4d	4f	5s	5p	5d	5f	6s	6p	6d	7s	7p	
Sulphur	S	16	[Ne] 3s <sup>2</sup> 3p <sup>4</sup>	2	2	6	2	4															
			Electrons in each shell	2	8	6																	
Chlorine	Cl	17	[Ne] 3s <sup>2</sup> 3p <sup>5</sup>	2	2	6	2	5															
			Electrons in each shell	2	8	7																	
Argon	Ar	18	[Ne] 3s <sup>2</sup> 3p <sup>6</sup>	2	2	6	2	6															
			Electrons in each shell	2	8	8																	

Potassium	K	19	[Ar] 4s <sup>1</sup>	2	2	6	2	6		1												
			Electrons in each shell	2	8	8						1										
Calcium	Ca	20	[Ar] 4s <sup>2</sup>	2	2	6	2	6		2												
			Electrons in each shell	2	8	8						2										
Scandium	Sc	21	[Ar] 3d <sup>1</sup> 4s <sup>2</sup>	2	2	6	2	6	1	2												
			Electrons in each shell	2	8	9						2										
Titanium	Ti	22	[Ar] 3d <sup>2</sup> 4s <sup>2</sup>	2	2	6	2	6	2	2												
			Electrons in each shell	2	8	10						2										
Vanadium	V	23	[Ar] 3d <sup>3</sup> 4s <sup>2</sup>	2	2	6	2	6	3	2												
			Electrons in each shell	2	8	11						2										
Chromium	Cr	24	[Ar] 3d <sup>5</sup> 4s <sup>1</sup>	2	2	6	2	6	5	1												
			Electrons / shell [MRV]	2	8	13						1										
Manganese	Mn	25	[Ar] 3d <sup>5</sup> 4s <sup>2</sup>	2	2	6	2	6	5	2												
			Electrons in each shell	2	8	13						2										
Iron	Fe	26	[Ar] 3d <sup>6</sup> 4s <sup>2</sup>	2	2	6	2	6	6	2												
			Electrons in each shell	2	8	14						2										
Cobalt	Co	27	[Ar] 3d <sup>7</sup> 4s <sup>2</sup>	2	2	6	2	6	7	2												
			Electrons in each shell	2	8	15						2										
Nickel	Ni	28	[Ar] 3d <sup>8</sup> 4s <sup>2</sup>	2	2	6	2	6	8	2												
			Electrons in each shell	2	8	16						2										
Copper	Cu	29	[Ar] 3d <sup>10</sup> 4s <sup>1</sup>	2	2	6	2	6	10	1												
			Electrons / shell [MRV]	2	8	18						1										

[MRV] = Madelung Rule Violation





Element	Symbol	Z	Electron Configuration	1s	2s	2p	3s	3p	3d	4s	4p	4d	4f	5s	5p	5d	5f	6s	6p	6d	7s	7p	
Neodymium	Nd	60	[Xe] 4f <sup>4</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	4	2	6			2					
			Electrons in each shell	2	8	18	22			8			2										
Promethium	Pm	61	[Xe] 4f <sup>5</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	5	2	6			2					
			Electrons in each shell	2	8	18	23			8			2										
Samarium	Sm	62	[Xe] 4f <sup>6</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	6	2	6			2					
			Electrons in each shell	2	8	18	24			8			2										
Europium	Eu	63	[Xe] 4f <sup>7</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	7	2	6			2					
			Electrons in each shell	2	8	18	25			8			2										
Gadolinium	Gd	64	[Xe] 4f <sup>7</sup> 5d <sup>1</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	7	2	6	1		2					
			Electrons / shell [MRV]	2	8	18	25			9			2										
Terbium	Tb	65	[Xe] 4f <sup>9</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	9	2	6			2					
			Electrons in each shell	2	8	18	27			8			2										
Dysprosium	Dy	66	[Xe] 4f <sup>10</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	10	2	6			2					
			Electrons in each shell	2	8	18	28			8			2										
Holmium	Ho	67	[Xe] 4f <sup>11</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	11	2	6			2					
			Electrons in each shell	2	8	18	29			8			2										
Erbium	Er	68	[Xe] 4f <sup>12</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	12	2	6			2					
			Electrons in each shell	2	8	18	30			8			2										
Thulium	Tm	69	[Xe] 4f <sup>13</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	13	2	6			2					
			Electrons in each shell	2	8	18	31			8			2										
Ytterbium	Yb	70	[Xe] 4f <sup>14</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6			2					
			Electrons in each shell	2	8	18	32			8			2										
Lutetium	Lu	71	[Xe] 4f <sup>14</sup> 5d <sup>1</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	1		2					
			Electrons in each shell	2	8	18	32			9			2										
Hafnium	Hf	72	[Xe] 4f <sup>14</sup> 5d <sup>2</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	2		2					
			Electrons in each shell	2	8	18	32			10			2										
Tantalum	Ta	73	[Xe] 4f <sup>14</sup> 5d <sup>3</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	3		2					
			Electrons in each shell	2	8	18	32			11			2										
Tungsten	W	74	[Xe] 4f <sup>14</sup> 5d <sup>4</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	4		2					
			Electrons in each shell	2	8	18	32			12			2										

Element	Symbol	Z	Electron Configuration	1s	2s	2p	3s	3p	3d	4s	4p	4d	4f	5s	5p	5d	5f	6s	6p	6d	7s	7p	
Rhenium	Re	75	[Xe] 4f <sup>14</sup> 5d <sup>5</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	5		2					
			Electrons in each shell	2	8	18	32			13			2										
Osmium	Os	76	[Xe] 4f <sup>14</sup> 5d <sup>6</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	6		2					
			Electrons in each shell	2	8	18	32			14			2										
Iridium	Ir	77	[Xe] 4f <sup>14</sup> 5d <sup>7</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	7		2					
			Electrons in each shell	2	8	18	32			15			2										
Platinum	Pt	78	[Xe] 4f <sup>14</sup> 5d <sup>9</sup> 6s <sup>1</sup>	2	2	6	2	6	10	2	6	10	14	2	6	9		1					
			Electrons / shell [MRV]	2	8	18	32			17			1										
Gold	Au	79	[Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>1</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		1					
			Electrons / shell [MRV]	2	8	18	32			18			1										
Mercury	Hg	80	[Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2					
			Electrons in each shell	2	8	18	32			18			2										
Thallium	Tl	81	[Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>1</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	1				
			Electrons in each shell	2	8	18	32			18			3										
Lead	Pb	82	[Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	2				
			Electrons in each shell	2	8	18	32			18			4										
Bismuth	Bi	83	[Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>3</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	3				
			Electrons in each shell	2	8	18	32			18			5										
Polonium	Po	84	[Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>4</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	4				
			Electrons in each shell	2	8	18	32			18			6										
Astatine	At	85	[Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>5</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	5				
			Electrons in each shell	2	8	18	32			18			7										
Radon	Rn	86	[Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>6</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	6				
			Electrons in each shell	2	8	18	32			18			8										

Francium	Fr	87	[Rn] 7s <sup>1</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	6			1
			Electrons in each shell	2	8	18	32			18			8	1								
Radium	Ra	88	[Rn] 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	6			2
			Electrons in each shell	2	8	18	32			18			8	2								
Actinium	Ac	89	[Rn] 6d <sup>1</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	6	1		2
			Electrons / shell [MRV]	2	8	18	32			18			9	2								

Element	Symbol	Z	Electron Configuration	1s	2s	2p	3s	3p	3d	4s	4p	4d	4f	5s	5p	5d	5f	6s	6p	6d	7s	7p
Thorium	Th	90	[Rn] 6d <sup>2</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10		2	6	2	2	
			Electrons / shell [MRV]	2	8	18	32			18			10			2						
Protactinium	Pa	91	[Rn] 5f <sup>2</sup> 6d <sup>1</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	2	2	6	1	2	
			Electrons / shell [MRV]	2	8	18	32			20			9			2						
Uranium	U	92	[Rn] 5f <sup>3</sup> 6d <sup>1</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	3	2	6	1	2	
			Electrons / shell [MRV]	2	8	18	32			21			9			2						
Neptunium	Np	93	[Rn] 5f <sup>4</sup> 6d <sup>1</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	4	2	6	1	2	
			Electrons / shell [MRV]	2	8	18	32			22			9			2						
Plutonium	Pu	94	[Rn] 5f <sup>6</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	6	2	6		2	
			Electrons in each shell	2	8	18	32			24			8			2						
Americium	Am	95	[Rn] 5f <sup>7</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	7	2	6		2	
			Electrons in each shell	2	8	18	32			25			8			2						
Curium	Cm	96	[Rn] 5f <sup>7</sup> 6d <sup>1</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	7	2	6	1	2	
			Electrons / shell [MRV]	2	8	18	32			25			9			2						
Berkelium	Bk	97	[Rn] 5f <sup>9</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	9	2	6		2	
			Electrons in each shell	2	8	18	32			27			8			2						
Californium	Cf	98	[Rn] 5f <sup>10</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	10	2	6		2	
			Electrons in each shell	2	8	18	32			28			8			2						
Einsteinium	Es	99	[Rn] 5f <sup>11</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	11	2	6		2	
			Electrons in each shell	2	8	18	32			29			8			2						
Fermium	Fm	100	[Rn] 5f <sup>12</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	12	2	6		2	
			Electrons in each shell	2	8	18	32			30			8			2						
Mendelevium	Md	101	[Rn] 5f <sup>13</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	13	2	6		2	
			Electrons in each shell	2	8	18	32			31			8			2						
Nobelium	No	102	[Rn] 5f <sup>14</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6		2	
			Electrons in each shell	2	8	18	32			32			8			2						
Lawrencium	Lr	103	[Rn] 5f <sup>14</sup> 7s <sup>2</sup> 7p <sup>1</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6		2	1
			Electrons / shell [MRV]	2	8	18	32			32			8			3						

Element	Symbol	Z	Electron Configuration	1s	2s	2p	3s	3p	3d	4s	4p	4d	4f	5s	5p	5d	5f	6s	6p	6d	7s	7p
Rutherfordium	Rf	104	[Rn] 5f <sup>14</sup> 6d <sup>2</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	2	2	
			Electrons in each shell	2	8	18	32			32			10			2						
Dubnium	Db	105	[Rn] 5f <sup>14</sup> 6d <sup>3</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	3	2	
			Electrons in each shell	2	8	18	32			32			11			2						
Seaborgium	Sg	106	[Rn] 5f <sup>14</sup> 6d <sup>4</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	4	2	
			Electrons in each shell	2	8	18	32			32			12			2						
Bohrium	Bh	107	[Rn] 5f <sup>14</sup> 6d <sup>5</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	5	2	
			Electrons in each shell	2	8	18	32			32			13			2						
Hassium	Hs	108	[Rn] 5f <sup>14</sup> 6d <sup>6</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	6	2	
			Electrons in each shell	2	8	18	32			32			14			2						
Meitnerium	Mt	109	[Rn] 5f <sup>14</sup> 6d <sup>7</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	7	2	
			Electrons in each shell	2	8	18	32			32			15			2						
Darmstadtium	Ds	110	[Rn] 5f <sup>14</sup> 6d <sup>9</sup> 7s <sup>1</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	9	1	
			Electrons / shell [MRV]	2	8	18	32			32			17			1						
Roentgenium	Rg	111	[Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>1</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	10	1	
			Electrons / shell [MRV]	2	8	18	32			32			18			1						
Copernicium	Cn	112	[Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	10	2	
			Electrons in each shell	2	8	18	32			32			18			2						
Nihonium	Nh	113	[Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>1</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	10	2	1
			Electrons in each shell	2	8	18	32			32			18			3						
Flerovium	Fl	114	[Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>2</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	10	2	2
			Electrons in each shell	2	8	18	32			32			18			4						
Moscovium	Mc	115	[Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>3</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	10	2	3
			Electrons in each shell	2	8	18	32			32			18			5						
Livermorium	Lv	116	[Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>4</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	10	2	4
			Electrons in each shell	2	8	18	32			32			18			6						
Tennessine	Ts	117	[Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>5</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	10	2	5
			Electrons in each shell	2	8	18	32			32			18			7						
Oganesson	Og	118	[Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>6</sup>	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2	6	10	2	6
			Electrons in each shell	2	8	18	32			32			18			8						