

Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**H** 1 1.008

1s1

### Hydrogen

1 Alkali Metal +H

1A Lithium Group

Nonmetal

Basic Organic



**He** 2 4.003

1s2

### Helium

18 Noble Gas

8A Helium Group

Noble Gas



**Li** 3 6.941

[He]2s1

### Lithium

1 Alkali Metal +H

1A Lithium Group

Alkali Metal

Suggested Trace



**Be** 4 9.012

[He]2s2

### Beryllium

2 Alkaline Earth Metal

2A Beryllium Group

Alkaline Earth Metal



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient



B 5 10.31

**Boron**

13 Triel

3A Boron Group

Metalloid

Suggested Trace



[He]2s2 2p1



C 6 12.01

**Carbon**

14 Tetrel

4A Carbon Group

Nonmetal

Basic Organic



[He]2s2 2p2



N 7 14.01

**Nitrogen**

15 Pnictogen

5A Nitrogen Group

Nonmetal

Basic Organic



[He]2s2 2p3



O 8 16

**Oxygen**

16 Chalcogen

6A Oxygen Group

Nonmetal

Basic Organic



[He]2s2 2p4

Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient



F 9 19

### Flourine

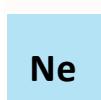
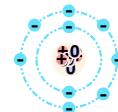
17 Halogen

7A Flourine Group

Halogen

Suggested Trace

[He]2s2 2p5



Ne 10 20.18

### Neon

18 Noble Gas

8A Helium Group

Noble Gas

[He]2s2 2p6



Na 11 22.99

### Sodium

1 Alkali Metal +H

1A Lithium Group

Alkali Metal

Quantity

[Ne]3s1



Mg 12 24.31

### Magnesium

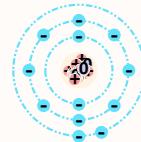
2 Alkaline Earth Metal

2A Beryllium Group

Alkaline Earth Metal

Quantity

[Ne]3s2



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

Al	13	26.982	<b>Aluminum</b> 13 Triel 3A Boron Group Basic Metal Trace Circumstantial	
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[Ne]3s2 3p1

Si	14	28.086	<b>Silicon</b> 14 Tetrel 4A Carbon Group Metalloid Suggested Trace	
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[Ne]3s2 3p2

P	15	30.97	<b>Phosphorus</b> 15 Pnictogen 5A Nitrogen Group Nonmetal Quantity	
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[Ne]3s2 3p3

S	16	32.07	<b>Sulfur</b> 16 Chalcogen 6A Oxygen Group Nonmetal Quantity	
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[Ne]3s2 3p4

Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient



17 35.45

### Chlorine

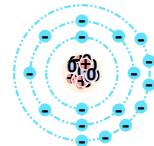
17 Halogen

7A Flourine Group

[Ne]3s2 3p5

Halogen

Quantity



18 39.948

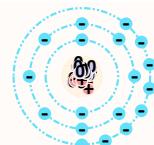
### Argon

18 Noble Gas

8A Helium Group

[Ne]3s2 3p6

Noble Gas



19 39.1

### Potassium

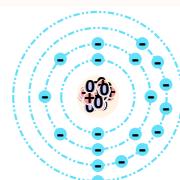
1 Alkali Metal +H

1A Lithium Group

Alkali Metal

[Ar]4s1

Quantity



20 40.08

### Calcium

2 Alkaline Earth Metal

2A Beryllium Group

Alkaline Earth Metal

[Ar]4s2

Quantity



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**Sc** 21 44.956

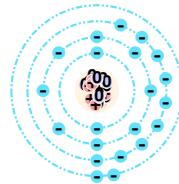
[Ar]3d1 4s2

### Scandium

3 Transition Metal 3

3B Scandium Group

Transition Metal



**Ti** 22 47.867

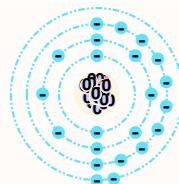
[Ar]3d2 4s2

### Titanium

4 Transition Metal 4

4B Titanium Group

Transition Metal



**V** 23 50.94

[Ar]3d3 4s2

### Vanadium

5 Transition Metal 5

5B Vanadium Group

Transition Metal

Suggested Trace



**Cr** 24 52

[Ar]3d5 4s1

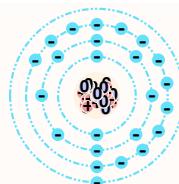
### Chromium

6 Transition Metal 6

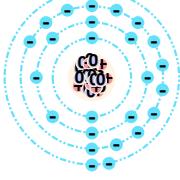
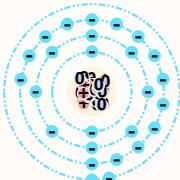
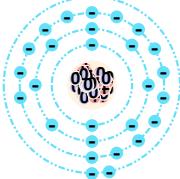
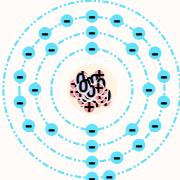
6B Chromium Group

Transition Metal

Trace by USA



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

Mn	25	54.94	<b>Manganese</b> 7 Transition Metal 7 7B Manganese Group Transition Metal Essential Trace	
Fe	26	55.85	<b>Iron</b> 8 Transition Metal 8 8B Iron Group Transition Metal Essential Trace	
Co	27	58.93	<b>Cobalt</b> 9 Transition Metal 8 (9) 8B Cobalt Group Transition Metal Essential Trace	
Ni	28	58.69	<b>Nickel</b> 10 Transition Metal 8 (10) 8B Nickel Group Transition Metal Suggested Trace	

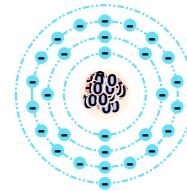
Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Cu** 29 63.55

[Ar]3d10 4s1

### Copper

11 Transition Metal (coins)  
1B Copper Group  
Transition Metal  
Essential Trace

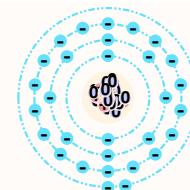


**Zn** 30 65.39

[Ar]3d10 4s2

### Zinc

12 Volatile Metal  
2B Zinc Group  
Transition Metal  
Essential Trace



**Ga** 31 69.723

[Ar]3d10 4s2 4p1

### Gallium

13 Triel  
3A Boron Group  
Basic Metal

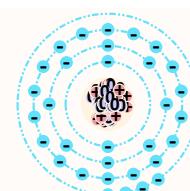


**Ge** 32 72.64

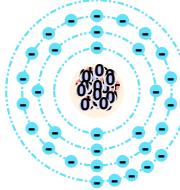
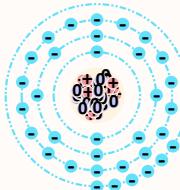
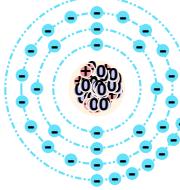
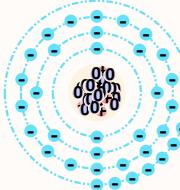
[Ar]3d10 4s2 4p2

### Germanium

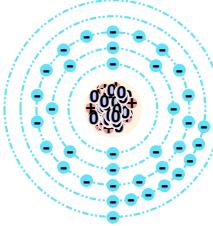
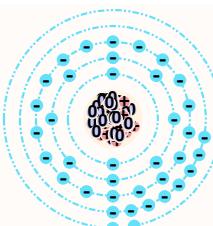
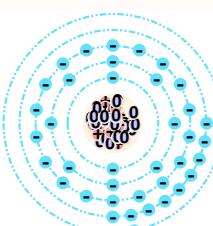
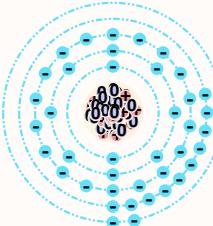
14 Tetrel  
4A Carbon Group  
Metalloid  
Trace Circumstantial



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As	33	74.922	<b>Arsenic</b> 15 Pnictogen 5A Nitrogen Group Metalloid Trace Circumstantial  [Ar]3d10 4s2 4p3	
Se	34	78.96	<b>Selenium</b> 16 Chalcogen 6A Oxygen Group Nonmetal Essential Trace  [Ar]3d10 4s2 4p4	
Br	35	79.904	<b>Bromine</b> 17 Halogen 7A Flourine Group Halogen Suggested Trace  [Ar]3d10 4s2 4p5	
Kr	36	83.8	<b>Krypton</b> 18 Noble Gas 8A Helium Group Noble Gas  [Ar]3d10 4s2 4p6	

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Rb	37	85.468	<b>Rubidium</b> 1 Alkali Metal +H 1A Lithium Group Alkali Metal Trace Circumstantial	
Sr	38	87.62	<b>Strontium</b> 2 Alkaline Earth Metal 2A Beryllium Group Alkaline Earth Metal Suggested Trace	
Y	39	88.906	<b>Yttrium</b> 3 Transition Metal 3 3B Scandium Group Transition Metal	
Zr	40	91.224	<b>Zirconium</b> 4 Transition Metal 4 4B Titanium Group Transition Metal	

Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Nb** 41 92.906

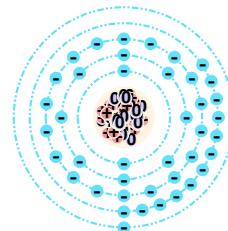
[Kr]4d4 5s1

### Noibium

5 Transition Metal 5

5B Vanadium Group

Transition Metal



**Mo** 42 95.94

[Kr]4d5 5s1

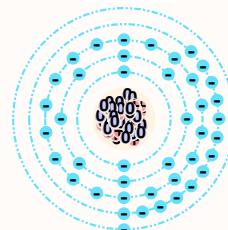
### Molybdenum

6 Transition Metal 6

6B Chromium Group

Transition Metal

Essential Trace



**Tc** 43 98

*Radioactive*

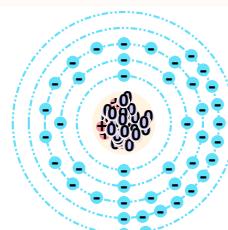
[Kr]4d5 5s2

### Technetium

7 Transition Metal 7

7B Manganese Group

Synthesized, not stable



**Ru** 44 101.07

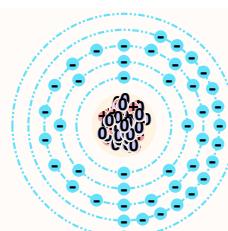
[Kr]4d7 5s1

### Ruthenium

8 Transition Metal 8

8B Iron Group

Transition Metal



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Rh** 45 102.906

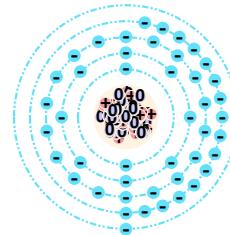
[Kr]4d8 5s1

**Rhodium**

9 Transition Metal 8 (9)

8B Cobalt Group

Transition Metal



**Pd** 46 106.42

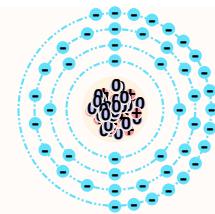
[Kr]4d10

**Palladium**

10 Transition Metal 8 (10)

8B Nickel Group

Transition Metal



**Ag** 47 107.868

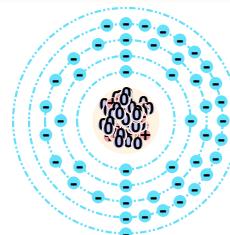
[Kr]4d10 5s1

**Silver**

11 Transition Metal (coins)

1B Copper Group

Transition Metal



**Cd** 48 112.411

[Kr]4d10 5s2

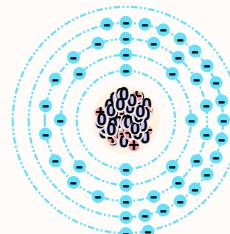
**Cadmium**

12 Volatile Metal

2B Zinc Group

Transition Metal

Lower Organisms



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

In 49 114.818

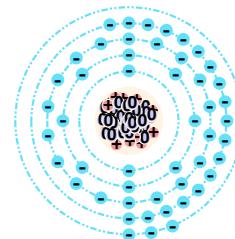
[Kr]4d10 5s2 5p1

**Indium**

13 Triel

3A Boron Group

Basic Metal



Sn 50 118.7

[Kr]4d10 5s2 5p2

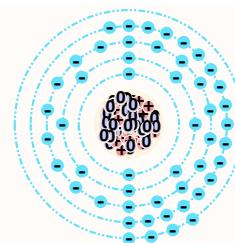
**Tin**

14 Tetrel

4A Carbon Group

Basic Metal

Trace Circumstantial



Sb 51 121.76

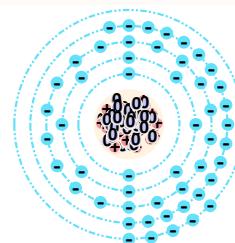
[Kr]4d10 5s2 5p3

**Antimony**

15 Pnictogen

5A Nitrogen Group

Metalloid



Te 52 127.6

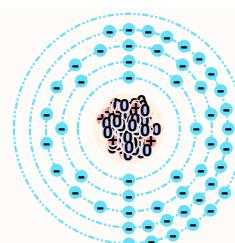
[Kr]4d10 5s2 5p4

**Tellurium**

16 Chalcogen

6A Oxygen Group

Metalloid



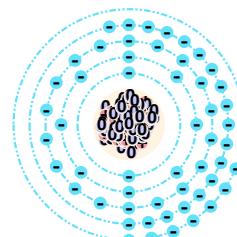
Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

I 53 126.9

[Kr]4d10 5s2 5p5

**Iodine**

17 Halogen  
7A Flourine Group  
Halogen  
Essential Trace

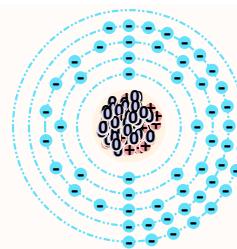


Xe 54 131.293

[Kr]4d10 5s2 5p6

**Xenon**

18 Noble Gas  
8A Helium Group  
Noble Gas

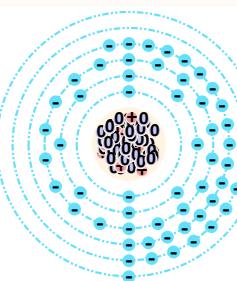


Cs 55 132.906

[Xe]6s1

**Cesium**

1 Alkali Metal +H  
1A Lithium Group  
Alkali Metal

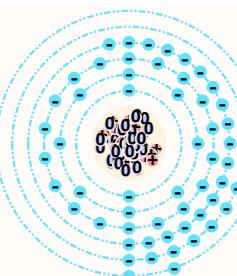


Ba 56 137.3

[Xe]6s2

**Barium**

2 Alkaline Earth Metal  
2A Beryllium Group  
Alkaline Earth Metal



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**La**

57

138.906

**Lanthanum**

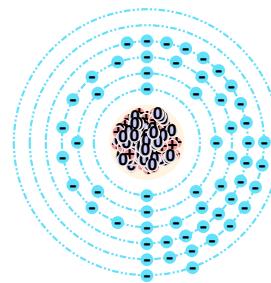
Lanthanide

La Lanthanum Group

Lanthanide

Lower Organisms

[Xe]5d1 6s2

**Ce**

58

140.116

**Cerium**

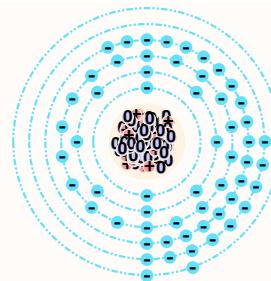
Lanthanide

La Lanthanum Group

Lanthanide

Lower Organisms

[Xe]4f1 5d1 6s2

**Pr**

59

140.908

**Praseodymium**

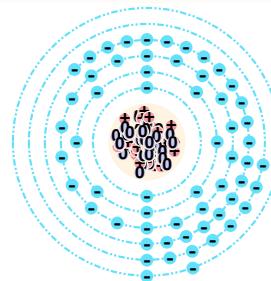
Lanthanide

La Lanthanum Group

Lanthanide

Lower Organisms

[Xe]4f3 6s2

**Nd**

60

144.24

**Neodymium**

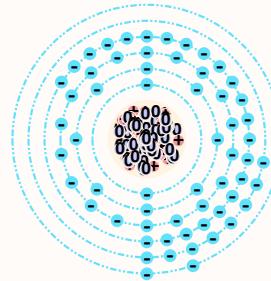
Lanthanide

La Lanthanum Group

Lanthanide

Lower Organisms

[Xe]4f4 6s2



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Pm**

61      145

*Radioactive*

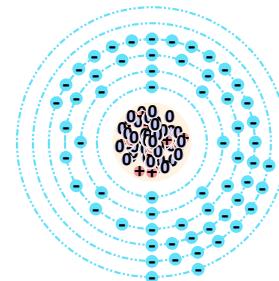
[Xe]4f5 6s2

**Promethium**

Lanthanide

La Lanthanum Group

Synthesized, not stable

**Sm**

62      150.36

[Xe]4f6 6s2

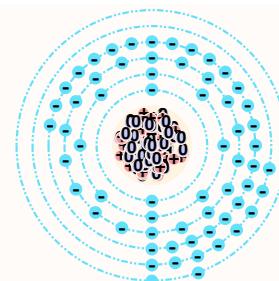
**Samarium**

Lanthanide

La Lanthanum Group

Lanthanide

Lower Organisms

**Eu**

63      151.964

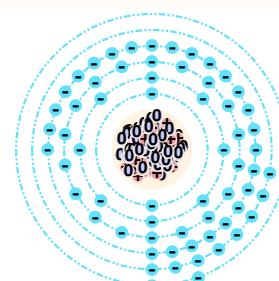
[Xe]4f7 6s2

**Europium**

Lanthanide

La Lanthanum Group

Lanthanide

**Gd**

64      157.25

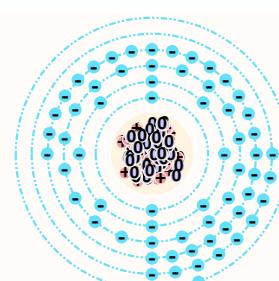
[Xe]4f7 5d1 6s2

**Gadolinium**

Lanthanide

La Lanthanum Group

Lanthanide



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Tb**

65

158.925

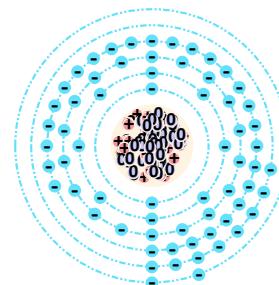
**Terbium**

Lanthanide

La Lanthanum Group

Lanthanide

[Xe]4f9 6s2

**Dy**

66

162.5

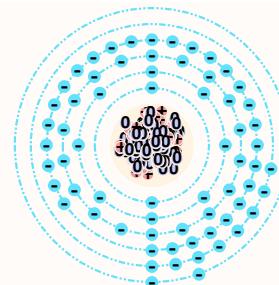
**Dysprosium**

Lanthanide

La Lanthanum Group

Lanthanide

[Xe]4f10 6s2

**Ho**

67

164.93

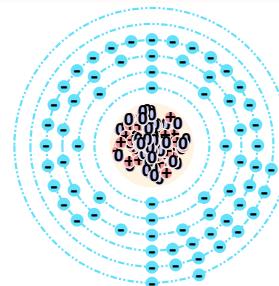
**Holmium**

Lanthanide

La Lanthanum Group

Lanthanide

[Xe]4f11 6s2

**Er**

68

167.259

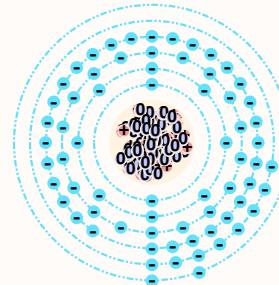
**Erbium**

Lanthanide

La Lanthanum Group

Lanthanide

[Xe]4f12 6s2



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Tm**

69

168.934

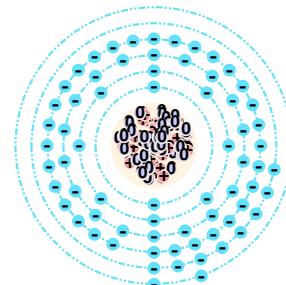
**Thulium**

Lanthanide

La Lanthanum Group

Lanthanide

[Xe]4f13 6s2

**Yb**

70

173.04

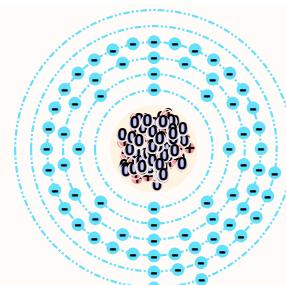
**Ytterbium**

Lanthanide

La Lanthanum Group

Lanthanide

[Xe]4f14 6s2

**Lu**

71

174.97

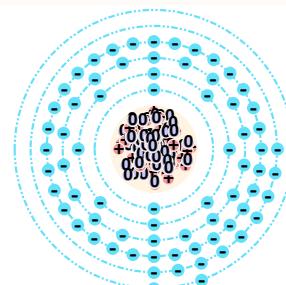
**Lutetium**

3 Transition Metal 3

3B Scandium Group

Transition Metal

[Xe]4f14 5d1 6s2

**Hf**

72

178.49

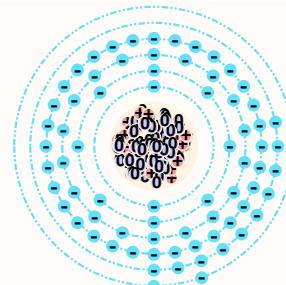
**Hafnium**

4 Transition Metal 4

4B Titanium Group

Transition Metal

[Xe]4f14 5d2 6s2



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Ta** 73 180.948

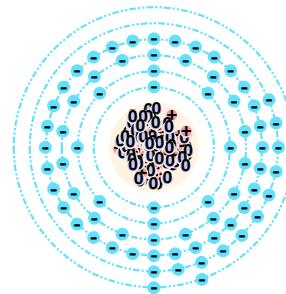
[Xe]4f14 5d3 6s2

### Tantalum

5 Transition Metal 5

5B Vanadium Group

Transition Metal



**W** 74 183.84

[Xe]4f14 5d4 6s2

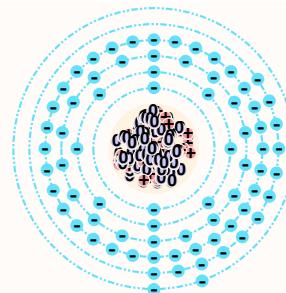
### Tungsten

6 Transition Metal 6

6B Chromium Group

Transition Metal

Lower Organisms



**Re** 75 186.207

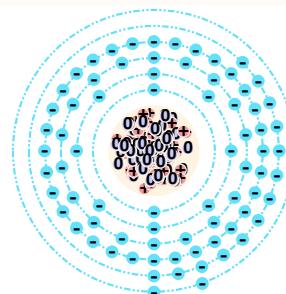
[Xe]4f14 5d5 6s2

### Rhenium

7 Transition Metal 7

7B Manganese Group

Transition Metal



**Os** 76 190.23

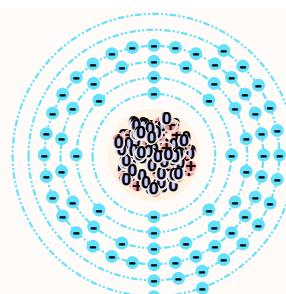
[Xe]4f14 5d6 6s2

### Osmium

8 Transition Metal 8

8B Iron Group

Transition Metal



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Ir** 77 192.217

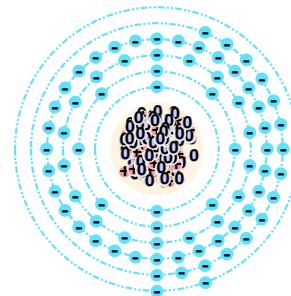
[Xe]4f14 5d7 6s2

### Iridium

9 Transition Metal 8 (9)

8B Cobalt Group

Transition Metal



**Pt** 78 195.078

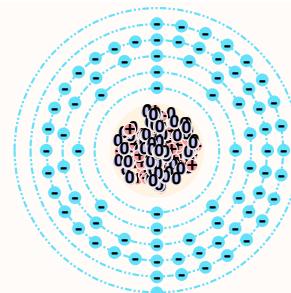
[Xe]4f14 5d9 6s1

### Platinum

10 Transition Metal 8 (10)

8B Nickel Group

Transition Metal



**Au** 79 196.967

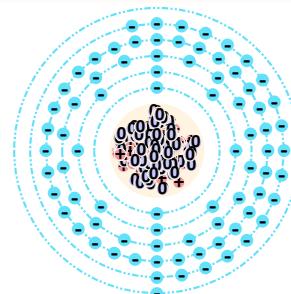
[Xe]4f14 5d10 6s1

### Gold

11 Transition Metal (coins)

1B Copper Group

Transition Metal



**Hg** 80 200.59

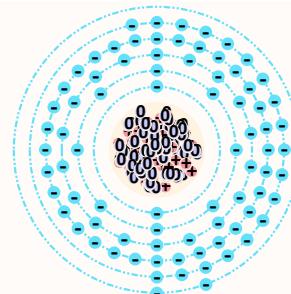
[Xe]4f14 5d10 6s2

### Mercury

12 Volatile Metal

2B Zinc Group

Transition Metal



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Tl** 81 204.383

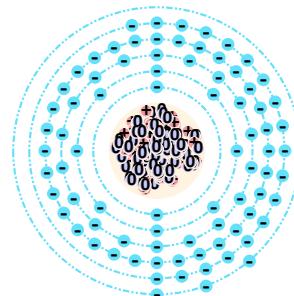
[Xe]4f14 5d10 6s2 6p1

### Thallium

13 Triel

3A Boron Group

Basic Metal



**Pb** 82 207.2

[Xe]4f14 5d10 6s2 6p2

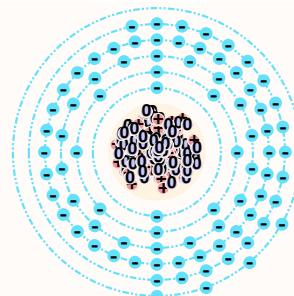
### Lead

14 Tetrel

4A Carbon Group

Basic Metal

Trace Circumstantial



**Bi** 83 208.98

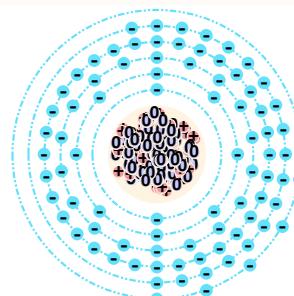
[Xe]4f14 5d10 6s2 6p3

### Bismuth

15 Pnictogen

5A Nitrogen Group

Basic Metal



**Po** 84 209

*Radioactive*

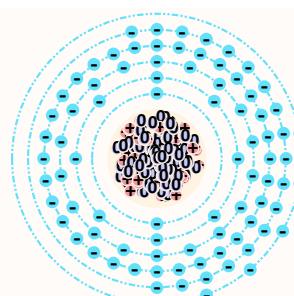
[Xe]4f14 5d10 6s2 6p4

### Polonium

16 Chalcogen

6A Oxygen Group

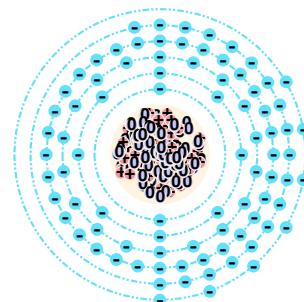
Metalloid



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

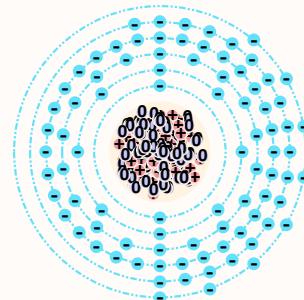
<b>At</b>	85	210
<i>Radioactive</i>		
[Xe]4f14 5d10 6s2 6p5		

**Astatine**  
17 Halogen  
7A Flourine Group  
Halogen



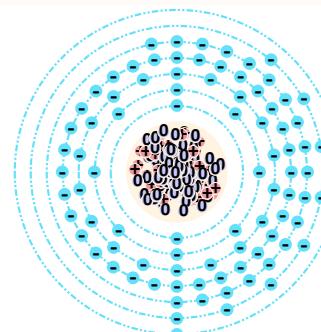
<b>Rn</b>	86	222
<i>Radioactive</i>		
[Xe]4f14 5d10 6s2 6p6		

**Radon**  
18 Noble Gas  
8A Helium Group  
Noble Gas



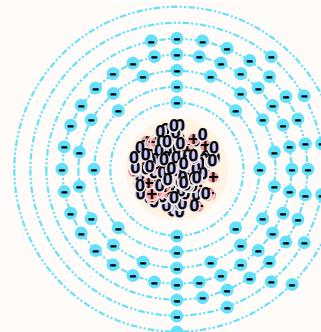
<b>Fr</b>	87	223
<i>Radioactive</i>		
[Rn]7s1		

**Francium**  
1 Alkali Metal +H  
1A Lithium Group  
Alkali Metal



<b>Ra</b>	88	226
<i>Radioactive</i>		
[Rn]7s2		

**Radium**  
2 Alkaline Earth Metal  
2A Beryllium Group  
Alkaline Earth Metal



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Ac**

89

227

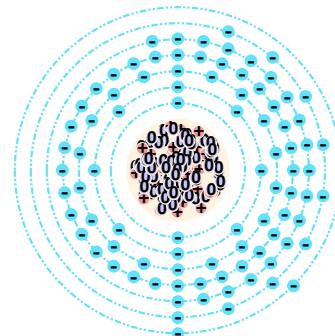
### Actinium

Actinide

Ac Actinium Group

Actinide

[Rn]6d1 7s2



**Th**

90

232.038

*Radioactive*

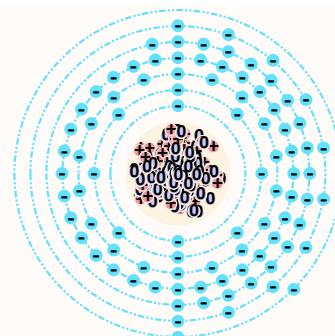
[Rn]6d2 7s2

### Thorium

Actinide

Ac Actinium Group

Actinide



**Pa**

91

231.036

*Radioactive*

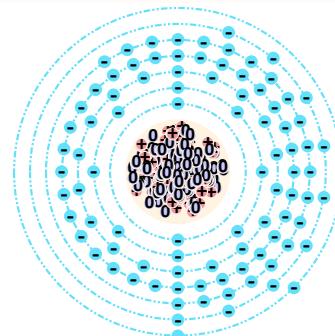
[Rn]5f2 6d1 7s2

### Protactinium

Actinide

Ac Actinium Group

Actinide



**U**

92

238.029

*Radioactive*

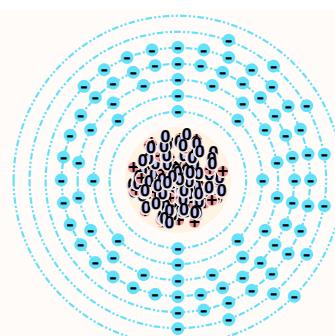
[Rn]5f3 6d1 7s2

### Uranium

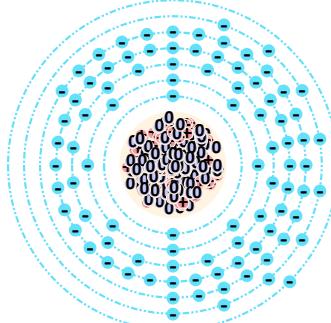
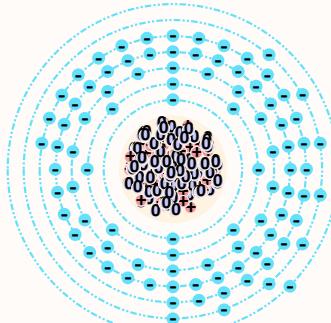
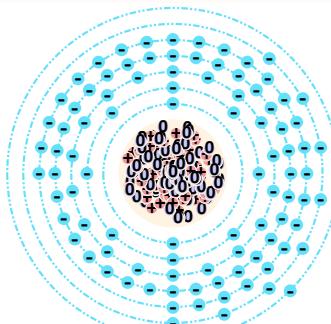
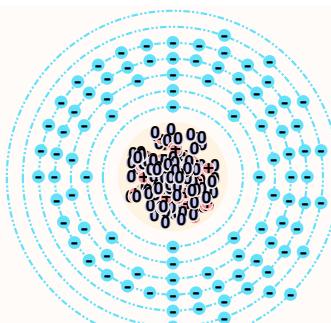
Actinide

Ac Actinium Group

Actinide



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

<b>Np</b>	93	237	<b>Neptunium</b> Actinide <i>Radioactive</i> $[Rn]5f4\ 6d1\ 7s2$	
<b>Pu</b>	94	244	<b>Plutonium</b> Actinide <i>Radioactive</i> $[Rn]5f6\ 7s2$	
<b>Am</b>	95	243	<b>Americium</b> Actinide <i>Radioactive</i> $[Rn]5f7\ 7s2$	
<b>Cm</b>	96	247	<b>Curium</b> Actinide <i>Radioactive</i> $[Rn]5f7\ 6d1\ 7s2$	

Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient



Bk 97 247

*Radioactive*

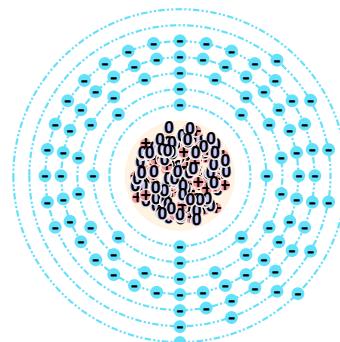
[Rn]5f9 7s2

### Berkelium

Actinide

Ac Actinium Group

Synthesized, not stable



Cf 98 251

*Radioactive*

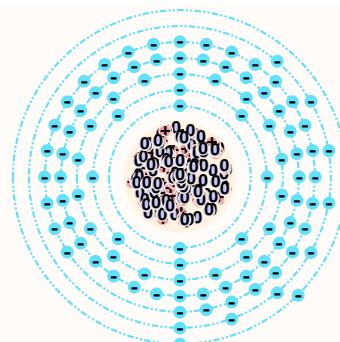
[Rn]5f10 7s2

### Californium

Actinide

Ac Actinium Group

Synthesized, not stable



Es 99 252

*Radioactive*

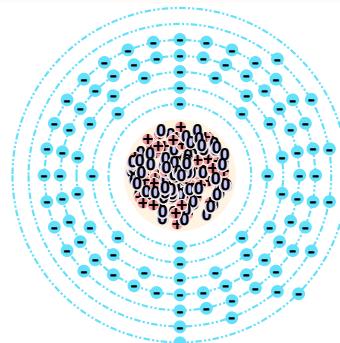
[Rn]5f11 7s2

### Einsteinium

Actinide

Ac Actinium Group

Synthesized, not stable



Fm 100 257

*Radioactive*

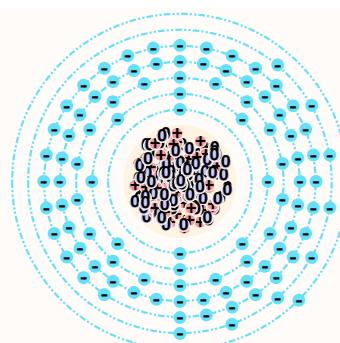
[Rn]5f12 7s2

### Fermium

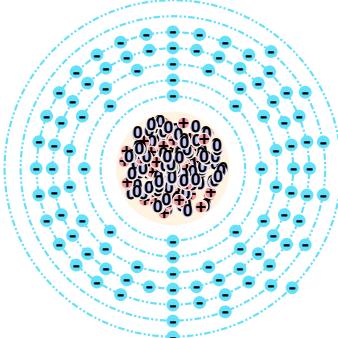
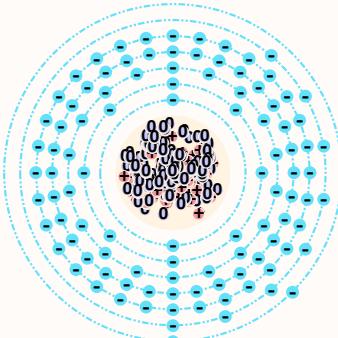
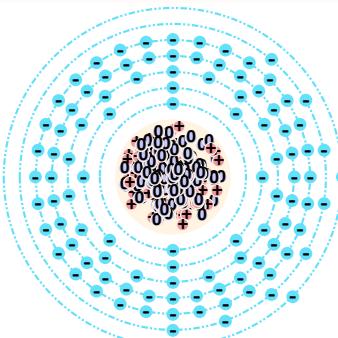
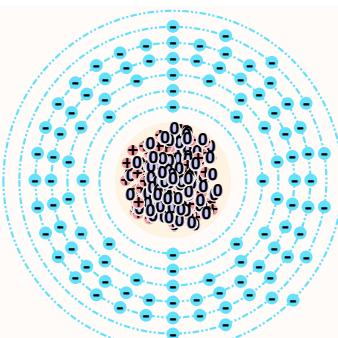
Actinide

Ac Actinium Group

Synthesized, not stable



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

<b>Md</b>	101	258	<b>Mendelevium</b> Actinide <i>Radioactive</i> $[Rn]5f13\ 7s2$	
<b>No</b>	102	259	<b>Nobelium</b> Actinide <i>Radioactive</i> $[Rn]5f14\ 7s2$	
<b>Lr</b>	103	262	<b>Lawrencium</b> 3 Transition Metal 3 3B Scandium Group <i>Radioactive</i> $[Rn]5f14\ 7s2\ 7p1$	
<b>Rf</b>	104	261	<b>Rutherfordium</b> 4 Transition Metal 4 4B Titanium Group <i>Radioactive</i> $[Rn]5f14\ 6d2\ 7s2$	

Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Db** 105 262

*Radioactive*

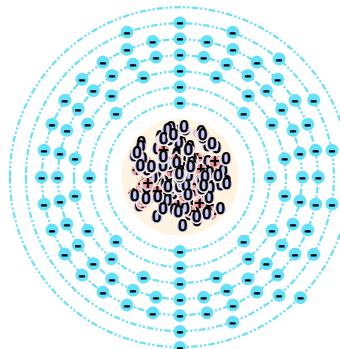
[Rn]5f14 6d3 7s2

### Dubnium

5 Transition Metal 5

5B Vanadium Group

Transition Metal



**Sg** 106 266

*Radioactive*

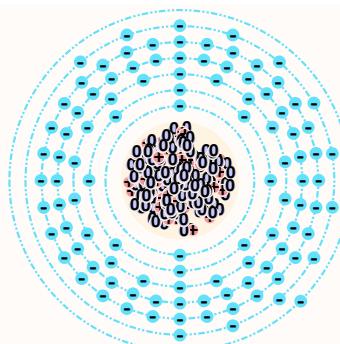
[Rn]5f14 6d4 7s2

### Seaborgium

6 Transition Metal 6

6B Chromium Group

Transition Metal



**Bh** 107 264

*Radioactive*

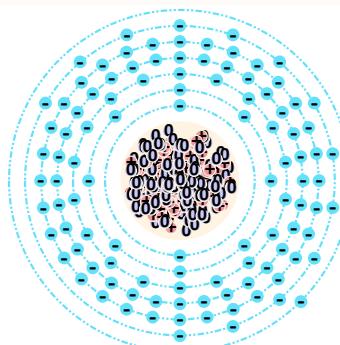
[Rn]5f14 6d5 7s2

### Bohrium

7 Transition Metal 7

7B Manganese Group

Transition Metal



**Hs** 108 277

*Radioactive*

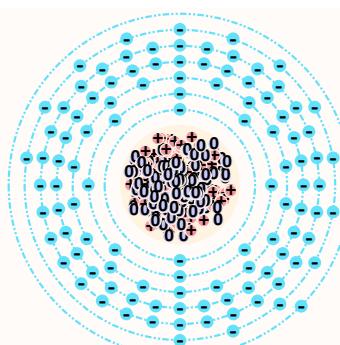
[Rn]5f14 6d6 7s2

### Hassium

8 Transition Metal 8

8B Iron Group

Transition Metal



Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Mt** 109 268

*Radioactive*

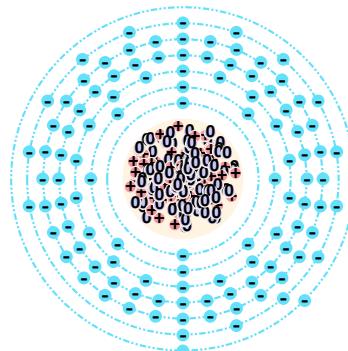
[Rn]5f14 6d7 7s2

### Meitnerium

9 Transition Metal 8 (9)

8B Cobalt Group

Unknown



**Ds** 110 270

*Radioactive*

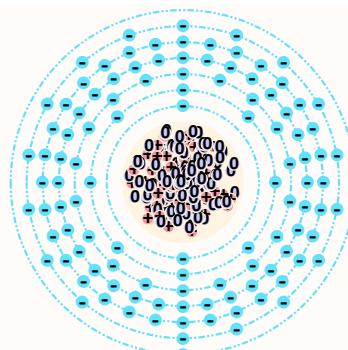
[Rn]5f14 6d9 7s1

### Darmstadtium

10 Transition Metal 8 (10)

8B Nickel Group

Unknown



**Rg** 111 272

*Radioactive*

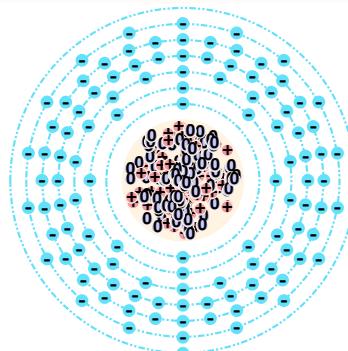
[Rn]5f14 6d10 7s1

### Roentgenium

11 Transition Metal (coins)

1B Copper Group

Unknown



**Cn** 112 284

*Radioactive*

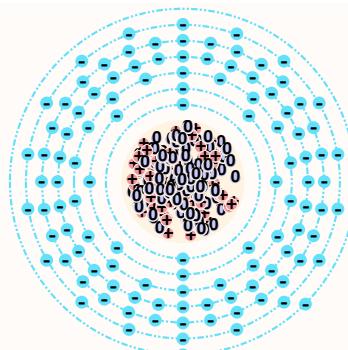
[Rn]5f14 6d10 7s2

### Copernicium

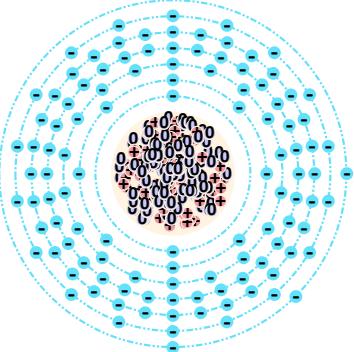
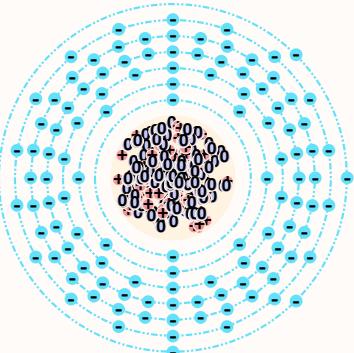
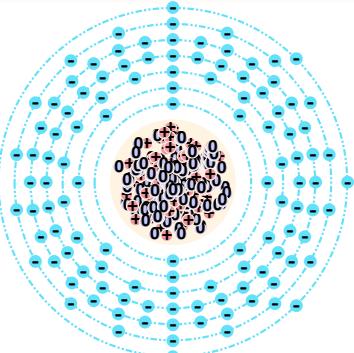
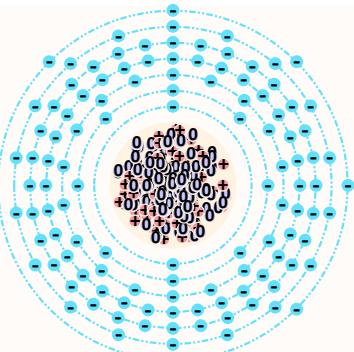
12 Volatile Metal

2B Zinc Group

Transition Metal



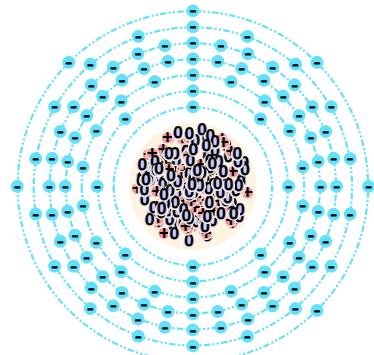
Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

<b>Nh</b>	113	287	<b>Nihonium</b> 13 Triel 3A Boron Group Unknown <i>Radioactive</i> [Rn]5f14 6d10 7s2 7p1	
<b>Fl</b>	114	289	<b>Flerovium</b> 14 Tetrel 4A Carbon Group Unknown <i>Radioactive</i> [Rn]5f14 6d10 7s2 7p2	
<b>Mc</b>	115	290	<b>Moscovium</b> 15 Pnictogen 5A Nitrogen Group Unknown <i>Radioactive</i> [Rn]5f14 6d10 7s2 7p3	
<b>Lv</b>	116	293	<b>Livermorium</b> 16 Chalcogen 6A Oxygen Group Unknown <i>Radioactive</i> [Rn]5f14 6d10 7s2 7p4	

Symbol Atomic # Atomic Mass Element / Group / Classification / Nutrient

**Ts**      117      294  
*Radioactive*  
[Rn]5f14 6d10 7s2 7p5

**Tennessine**  
17 Halogen  
7A Flourine Group  
Unknown



**Og**      118      294  
*Radioactive*  
[Rn]5f14 6d10 7s2 7p6

**Oganesson**  
18 Noble Gas  
8A Helium Group  
Unknown

