

18

By. Zachary Thammavongsy

18 is an organometallic card game designed to help inorganic chemistry students on their 18-electron counting. Based on the game of 21 (blackjack), ligand and metal cards will be paired to reach the stable valence electron count, 18. Players will play against the house (teacher, parents or classmate).

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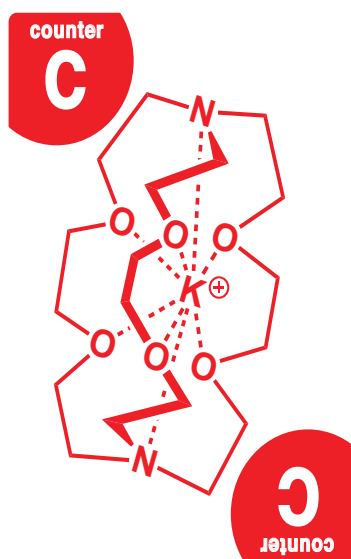
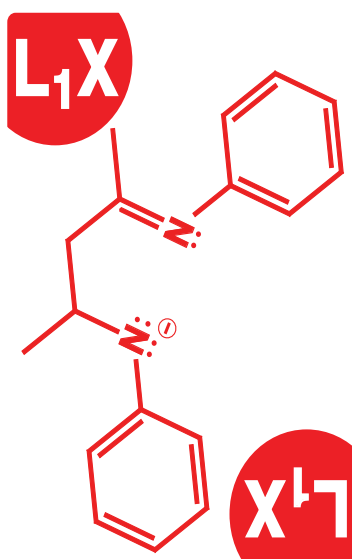
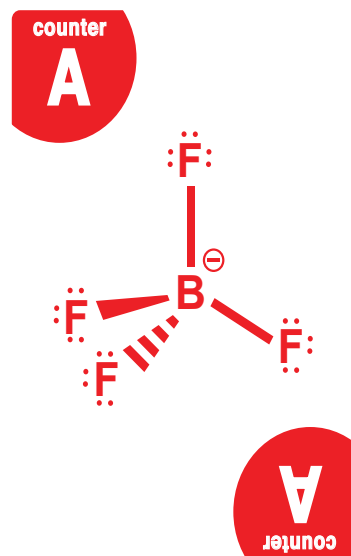
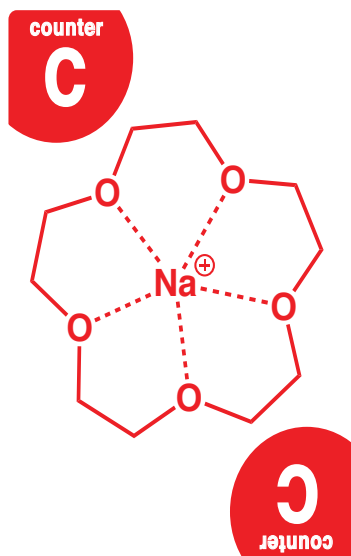
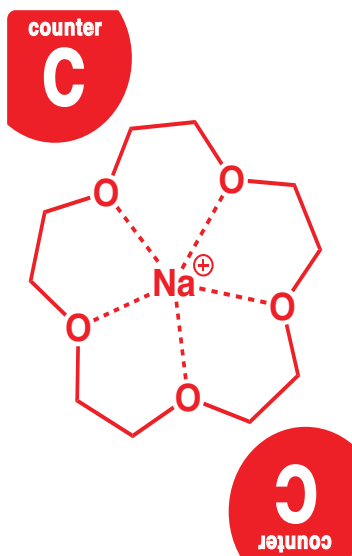
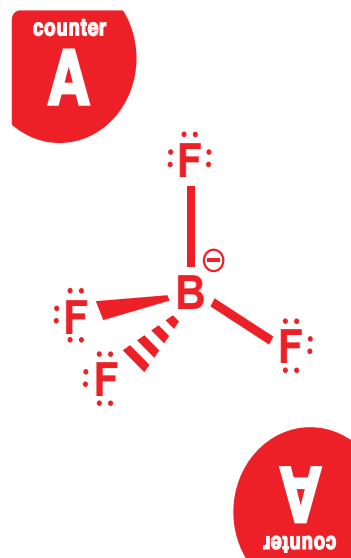
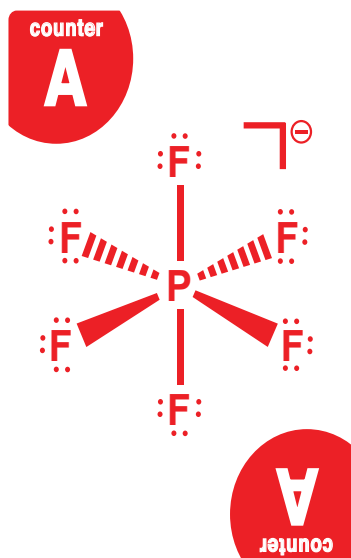
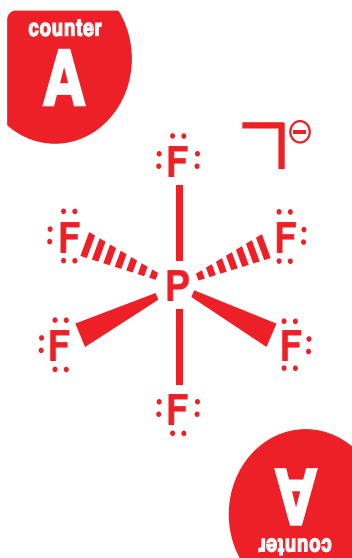
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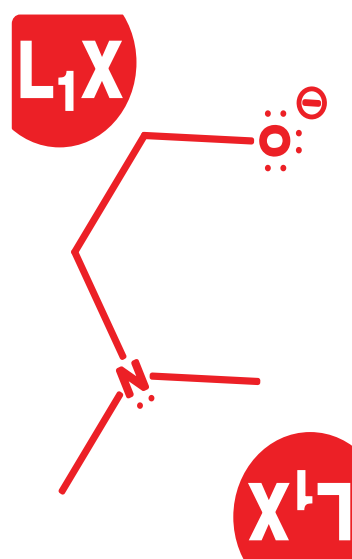
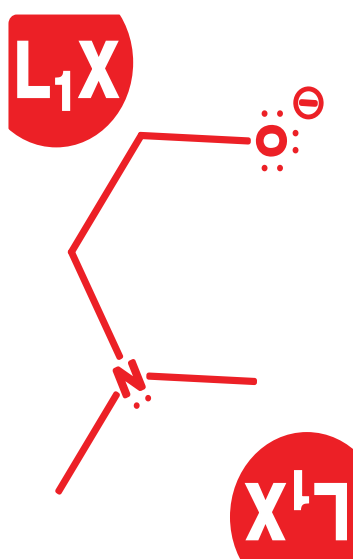
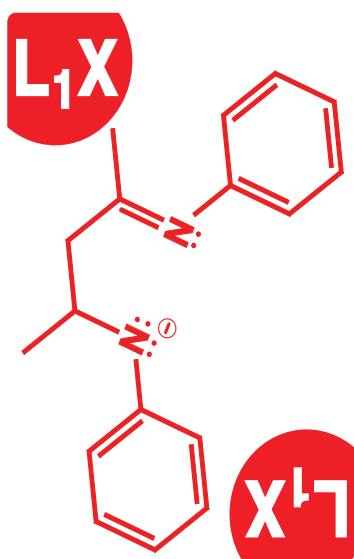
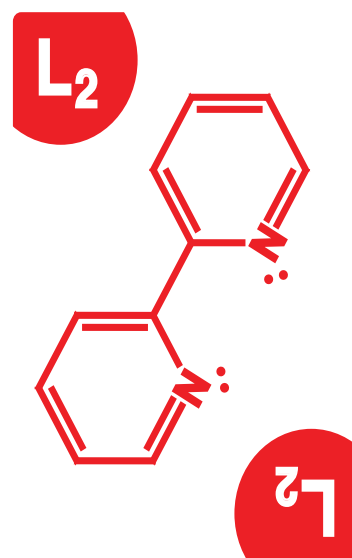
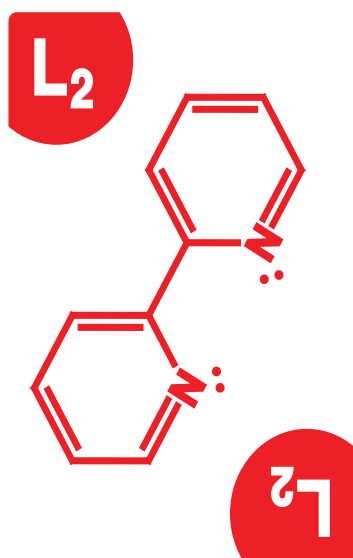
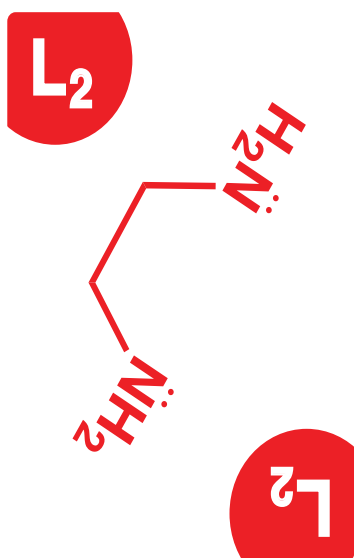
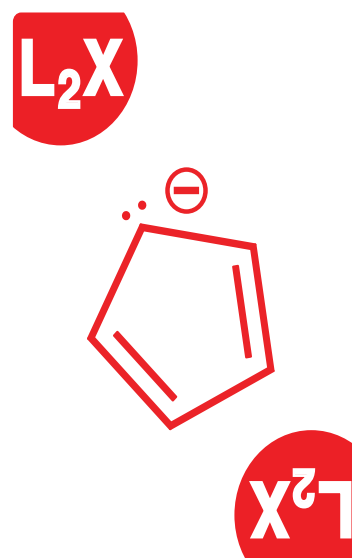
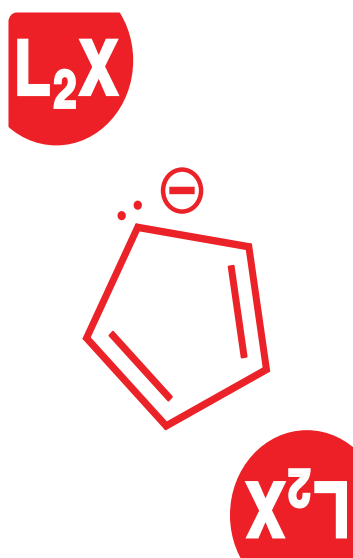
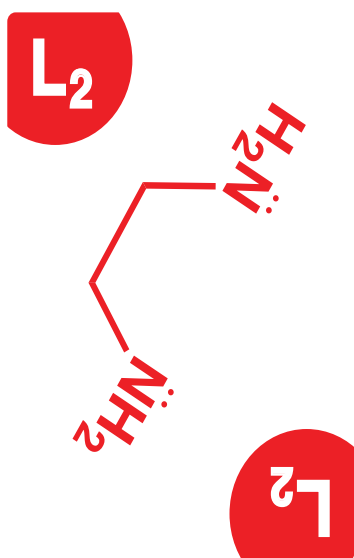
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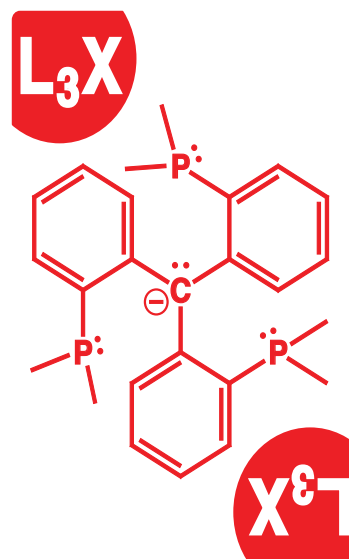
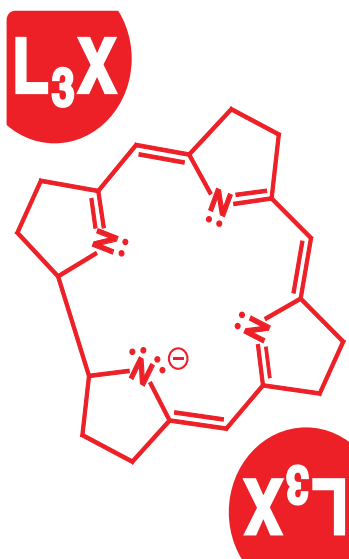
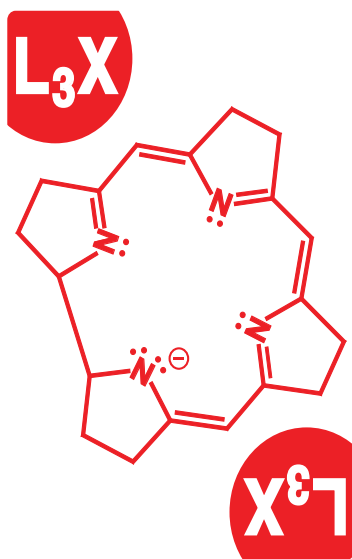
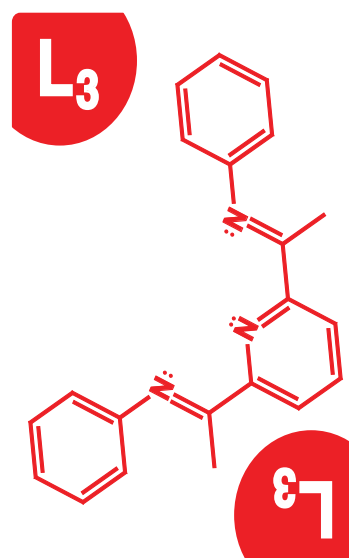
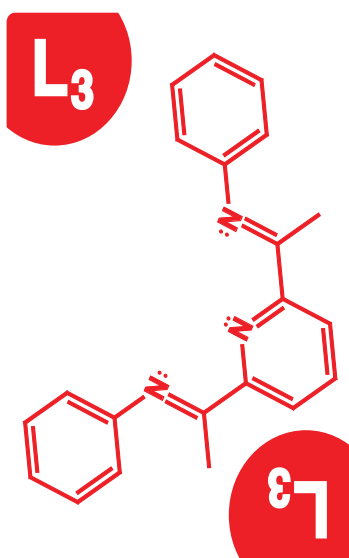
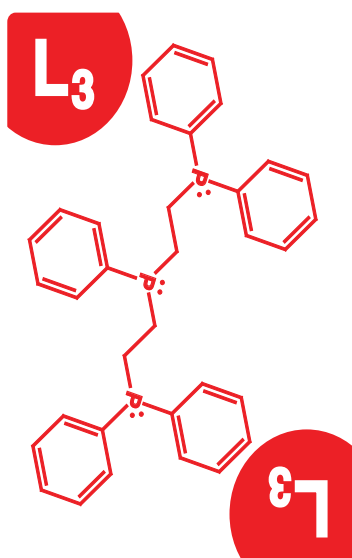
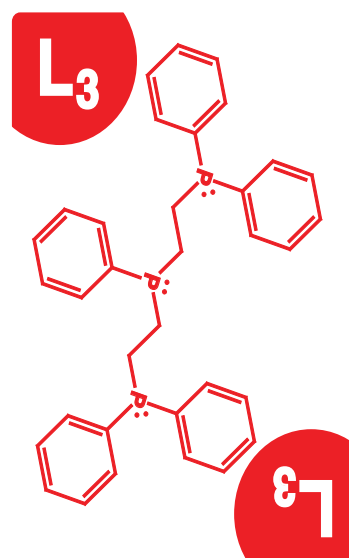
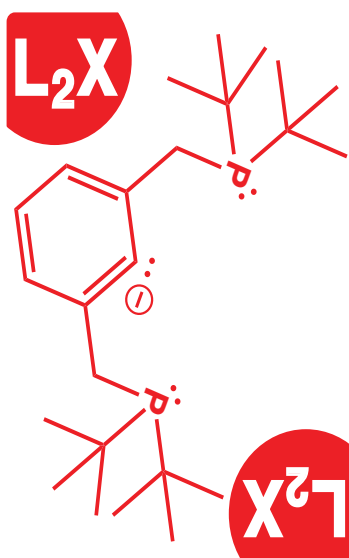
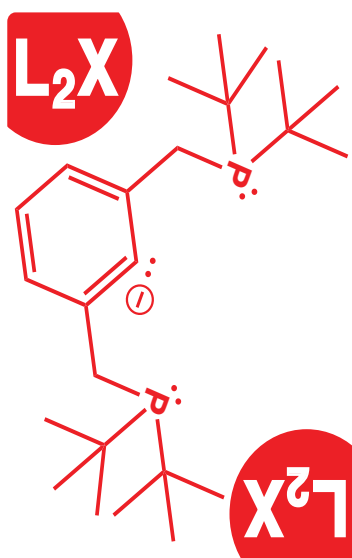
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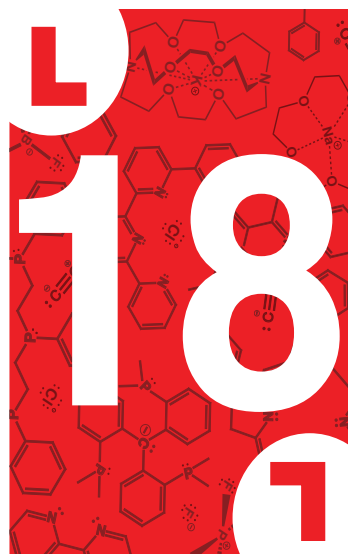


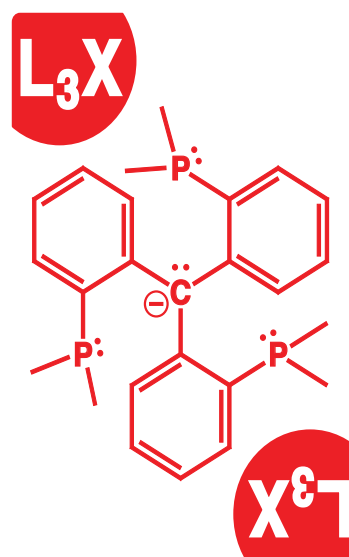
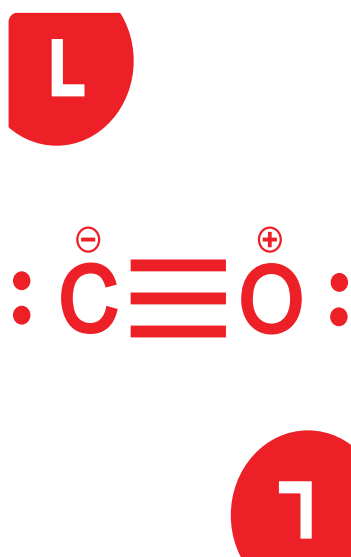
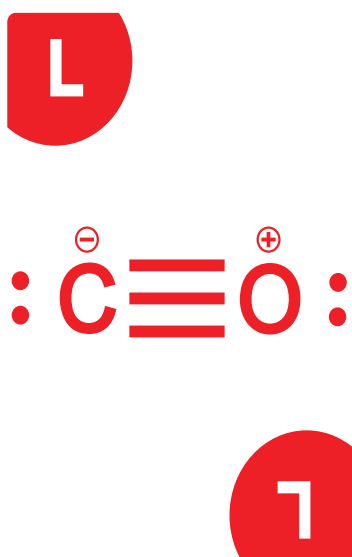
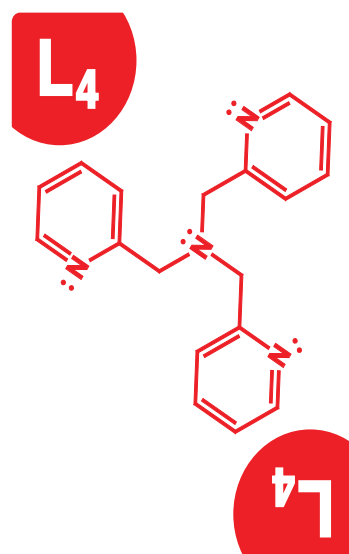
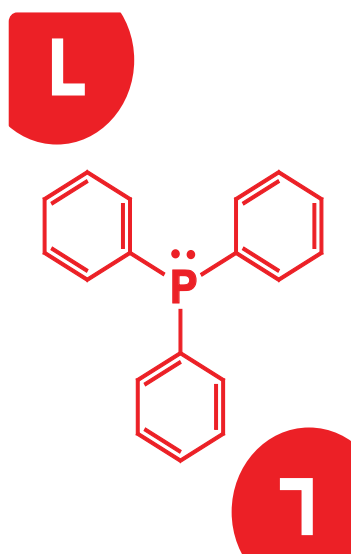
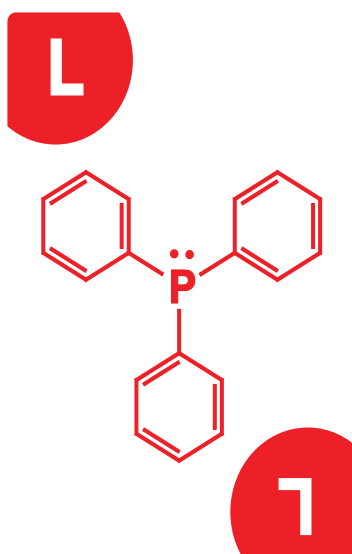
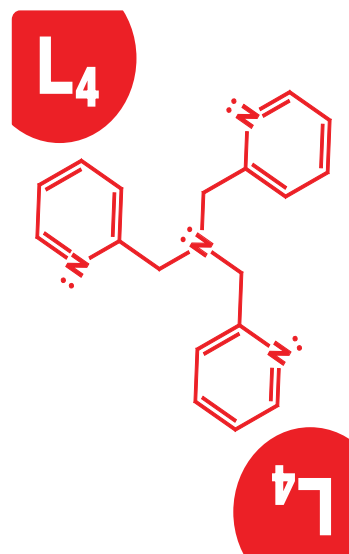
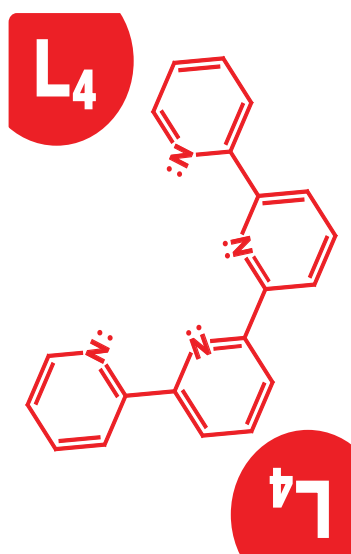
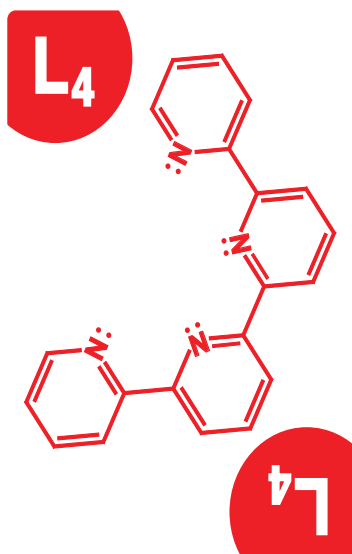


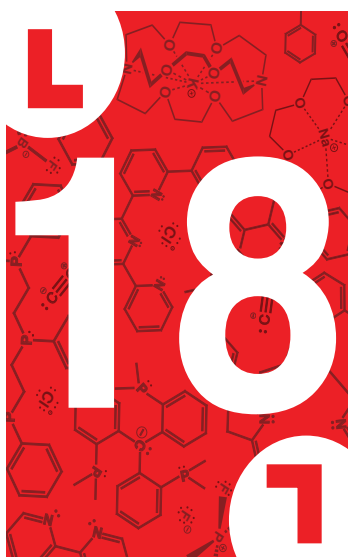














Ligand Card Count				
Ligand Type	Covalent Method	Ionic Method	Coord #	# of Cards
X	1	2	1	4
L	2	2	1	4
LX	3	4	2	4
L2	4	4	2	4
L2X	5	6	3	4
L3	6	6	3	4
L3X	7	8	4	4
L4	8	8	4	4
Counter Ion Card Count				
Counter Ion	Covalent Method	Ionic Method	# of Cards	
Anion	-1	-1	4	
Cation	1	1	4	

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L3X	7	8	4	4
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Counter Ion	Covalent Method	Ionic Method	# of Cards	
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Cation	1	1	4	

Metal Card Count

6	7	8	9	10	11	12
24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc
42 Mo Molybdenum		44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	
74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	

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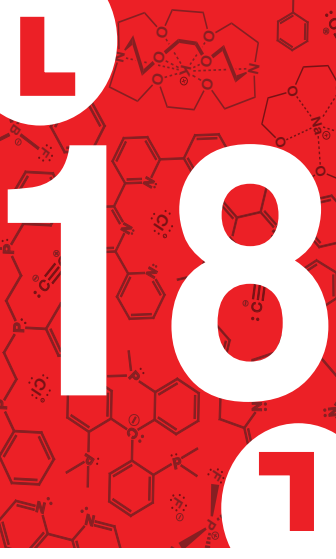


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Valence

11



11
Valence

Valence

11



11
Valence

Valence

9



6
Valence

Valence

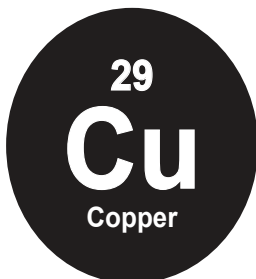
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9
Valence

Valence

11



11
Valence

Valence

8



8
Valence

Valence

9



6
Valence

Valence

6



9
Valence

Valence

7



7
Valence

M Au Fe
SC Pd Ta Zr
18
W
Hf Mr Ir
Co W Pt
Ni
Cr V
Rh Cu Nb

M Au Fe
SC Pd Ta Zr
18
W
Hf Mr Ir
Co W Pt
Ni
Cr V
Rh Cu Nb

M Au Fe
SC Pd Ta Zr
18
W
Hf Mr Ir
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Co W Pt
Ni
Cr V
Rh Cu Nb

M Au Fe
SC Pd Ta Zr
18
W
Hf Mr Ir
Co W Pt
Ni
Cr V
Rh Cu Nb

Valence

8

76

Os

Osmium

8

Valence

Valence

9

45

Rh

Rhodium

6

Valence

Valence

7

75

Re

Rhenium

4

Valence

Valence

10

28

Ni

Nickel

10

Valence

Valence

10

46

Pd

Palladium

10

Valence

Valence

8

44

Ru

Ruthenium

8

Valence

Valence

10

78

Pt

Platinum

10

Valence

Valence

6

74

W

Tungsten

9

Valence

Valence

12

30

Zn

Zinc

12

Valence

M Au Fe
SC Pd Ta Zr
18
W
Hf Mr Ir
Co W Pt
Ni
Cr V
Rh Cu Nb

M Au Fe
SC Pd Ta Zr
18
W
Hf Mr Ir
Co W Pt
Ni
Cr V
Rh Cu Nb

M Au Fe
SC Pd Ta Zr
18
W
Hf Mr Ir
Co W Pt
Ni
Cr V
Rh Cu Nb

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SC Pd Ta Zr
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