



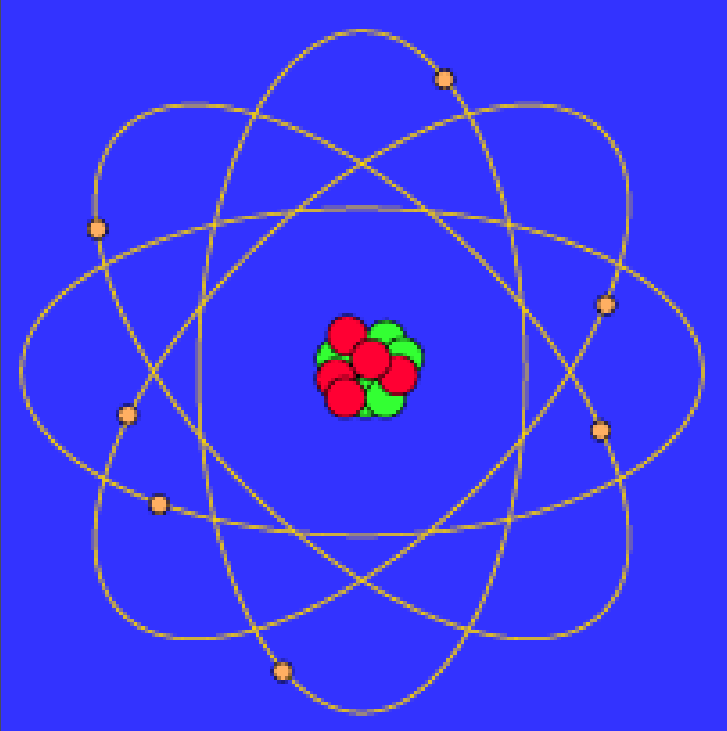
# Das Periodensystem der Elemente

I												III	IV	V	VI	VII	VIII	
1 H																		2 He
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne	
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr	
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe	
55 Cs	56 Ba		72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn	
87 Fr	88 Ra		104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Uut	114 Fl	115 Uup	116 Lv	117 Uus	118 Uuo	
		57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu		
		89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr		

# Das Atommodell nach Bohr



Niels Bohr 1885-1962



Das Atom besteht aus

-einem Kern, der fast die gesamte Masse des Atoms enthält.

Dieser Kern besteht aus positiv geladenen **Protonen**  $\oplus$  und aus elektrisch neutralen **Neutronen**  $\bullet$

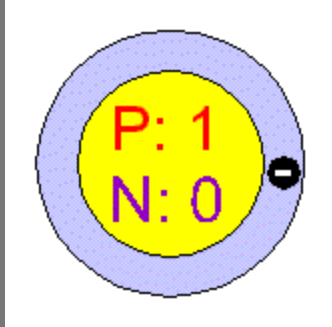
-einer Hülle, in der elektrisch negativ geladene **Elektronen**  $\ominus$  auf ganz bestimmten Bahnen den Kern umkreisen.

Ein Atom ist normalerweise nach außen hin elektrisch neutral, d.h. die Anzahl der Elektronen ist genau so groß, wie die der Protonen.

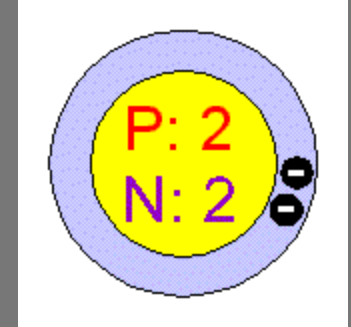


# Aufbau der Atome

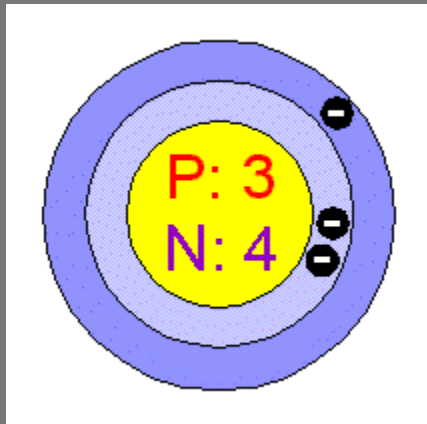
Das H-Atom  $Z=1$



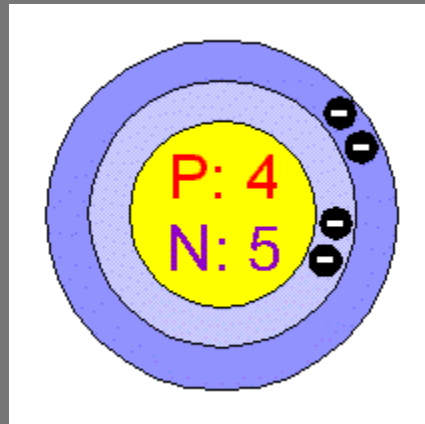
Das He-Atom  $Z=2$



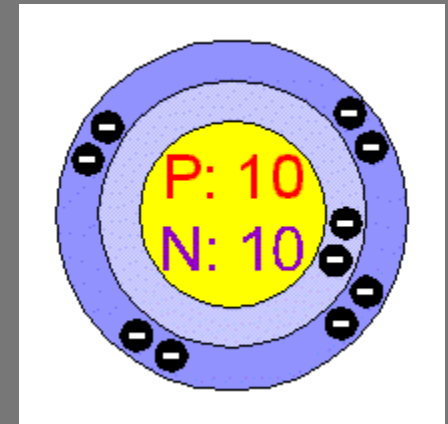
Das Li-Atom  $Z=3$



Das Be-Atom  $Z=4$



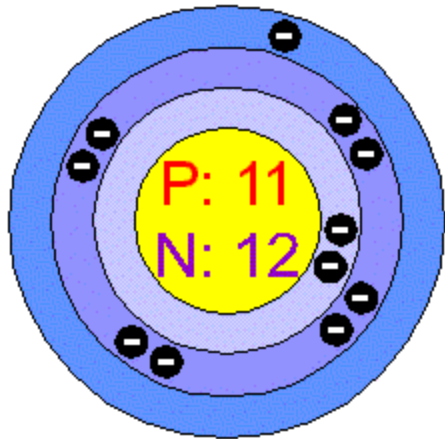
Das Ne-Atom  $Z=10$



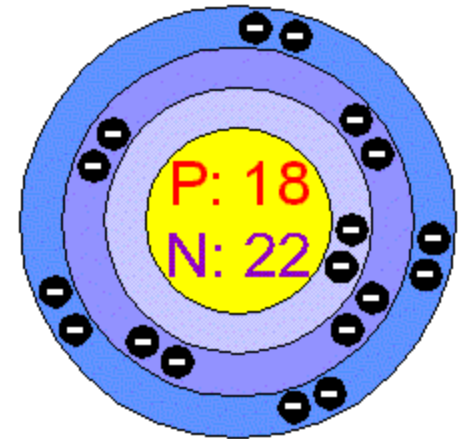


# Das Atommodell nach Bohr

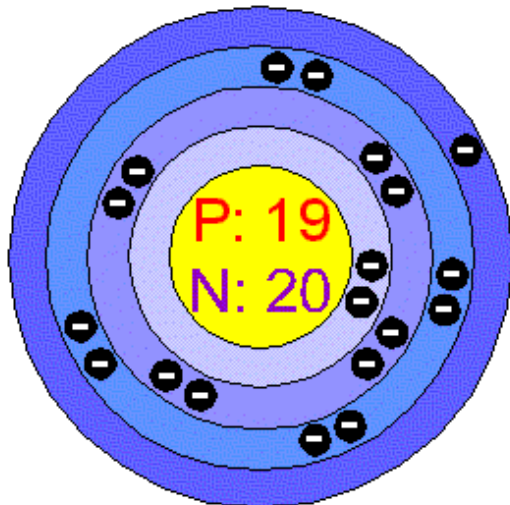
Das Na-Atom  $Z=11$



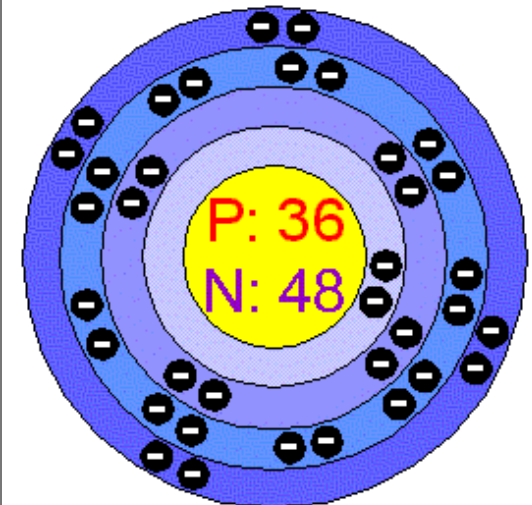
Das Ar-Atom  $Z=18$



Das Ka-Atom  $Z=19$



Das Kr-Atom  $Z=36$



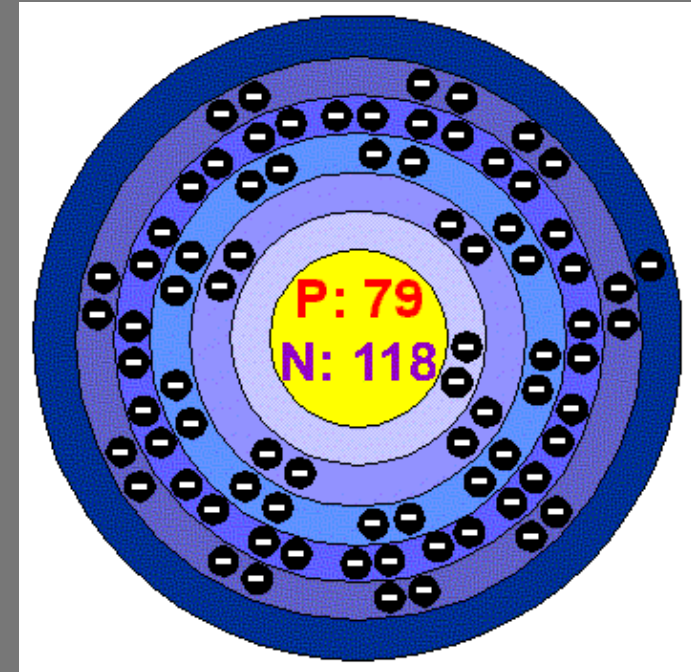
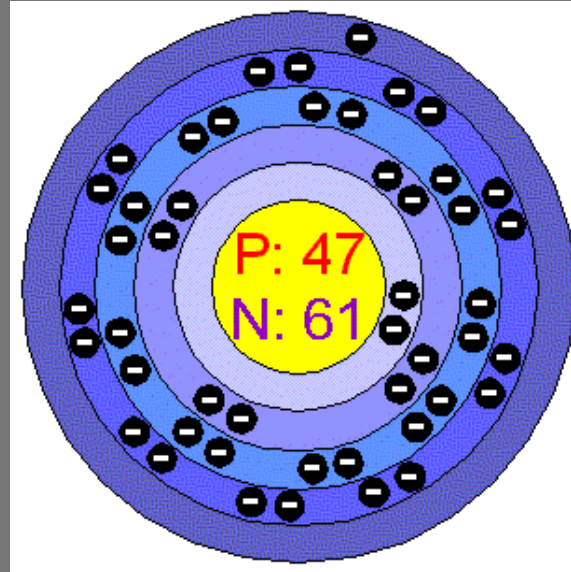
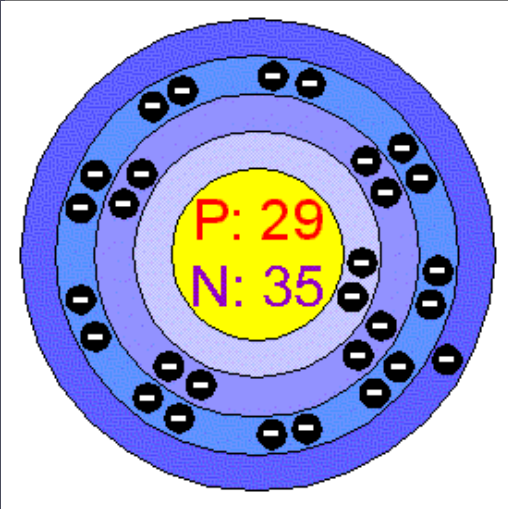


# Das Atommodell nach Bohr

Cu Z=29

Ag Z=47

Au Z=79



Cu (Kupfer)

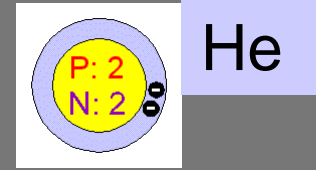
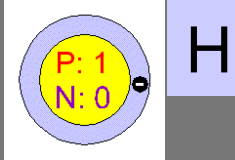
Ag (Silber)

Au (Gold)

sind gute Leiter für den elektrischen Strom, weil sie ein einzelnes Elektron in der äußeren Schale besitzen.



# Einige Elemente geordnet



Li

Be

B

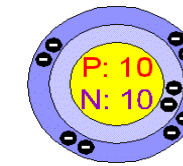
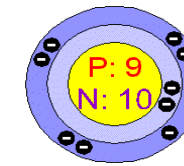
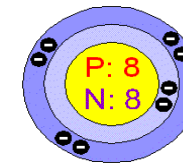
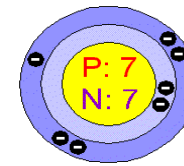
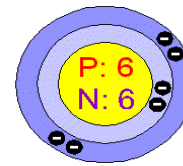
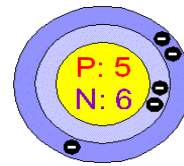
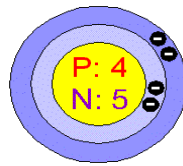
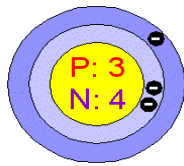
C

N

O

F

Ne



1	H	Wasserstoff	1	
2	He	Helium	2	
3	Li	Lithium	2	1
4	Be	Beryllium	2	2
5	B	Bor	2	3
6	C	Kohlenstoff	2	4
7	N	Stickstoff	2	5
8	O	Sauerstoff	2	6
9	F	Fluor	2	7
10	Ne	Neon	2	8



# Das Periodensystem – Besetzung der Schalen

Elektronenkonfiguration der Elemente (ZIM)			Schale						
			K	L	M	N	O	P	Q
1	H	Wasserstoff	1						
2	He	Helium	2						
3	Li	Lithium	2	1					
4	Be	Beryllium	2	2					
5	B	Bor	2	3					
6	C	Kohlenstoff	2	4					
7	N	Stickstoff	2	5					
8	O	Sauerstoff	2	6					
9	F	Fluor	2	7					
10	Ne	Neon	2	8					
11	Na	Natrium	2	8	1				
12	Mg	Magnesium	2	8	2				
13	Al	Aluminium	2	8	3				
14	Si	Silizium	2	8	4				
15	P	Phosphor	2	8	5				
16	S	Schwefel	2	8	6				
17	Cl	Chlor	2	8	7				
18	Ar	Argon	2	8	8				
19	K	Kalium	2	8	8	1			
20	Ca	Kalzium	2	8	8	2			
21	Sc	Scandium	2	8	9	2			
22	Ti	Titan	2	8	10	2			
23	V	Vanadium	2	8	11	2			