Scientific notation

$m \times 10^n$

$1 \leq m < 10$

2.45×10^n

n = exponent integer

$250 = 2.5 \times 10^2$

$250. = 2.50 \times 10^2$

$63\,000\,000 = 6.3 \times 10^7$

$.00150 = 1.50 \times 10^{-3}$

$150.78 = 1.5078 \times 10^2$

$.0007 = 7 \times 10^{-4}$

$23\,000 = 2.3 \times 10^4$

$2.5 \times 10^2 = 250$

$1.50 \times 10^{-3} = 0.00150$

56	000
+ 69	700
125	700

126 000

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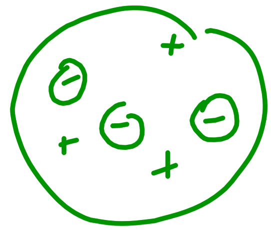
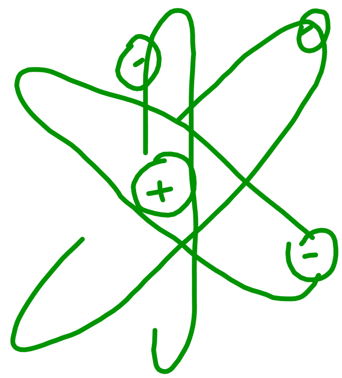
Models of atoms

J.J. Thompson

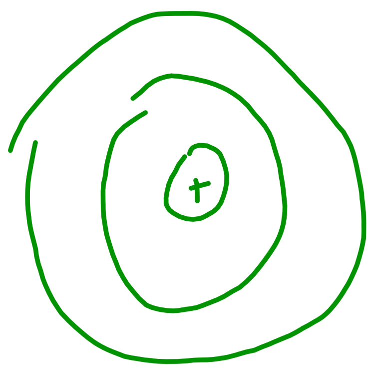


Rutherford

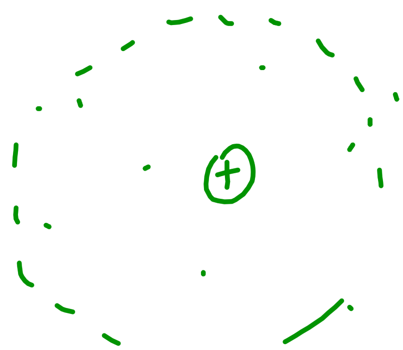


Bohr

"Planetary orbit model"



Electron cloud/Quantum model



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Quantum Theory - physics of the very small

Quantum Numbers - a set of four numbers used to locate an electron around the nucleus

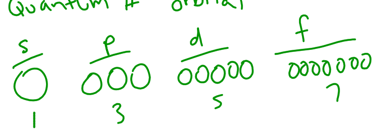
Principal Quantum Number (n)
"energy level" the electron is at
- rungs of ladder → takes more energy to go further

n=1
n=2
n=3
... n=7

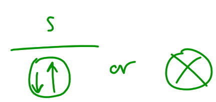
2nd quantum # - sublevel (s, p, d, f)

1s
2s 2p
3s 3p 3d
4s 4p 4d 4f
5s 5p 5d 5f
6s 6p 6d
7s 7p

3rd Quantum # orbital



4th Quantum # spin
- 2 electrons per orbit
- will stay in same orbit if they're spinning in opposite directions



Heisenberg's Uncertainty principal
- you can never know the exact location and the exact momentum of an electron at the same time.

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