

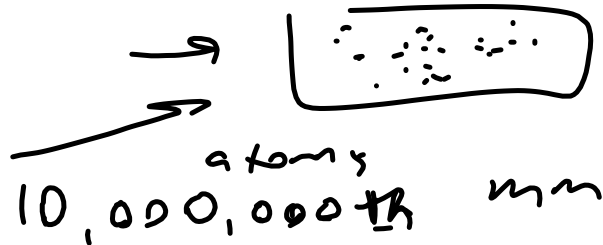
450 BC - Leucippus
 - Democritus

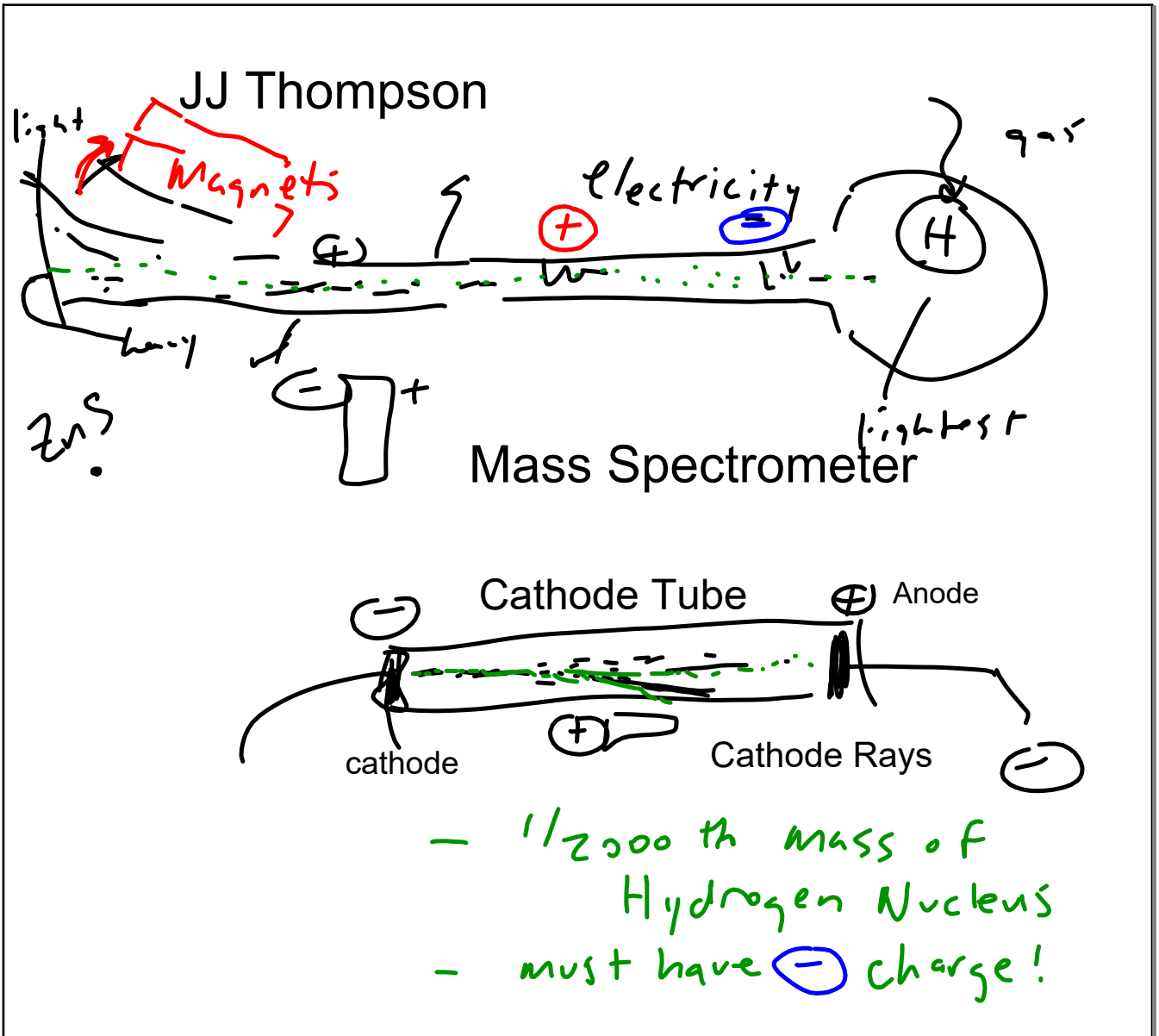
Atomos → undivideable
 infinite amnt. of
 types

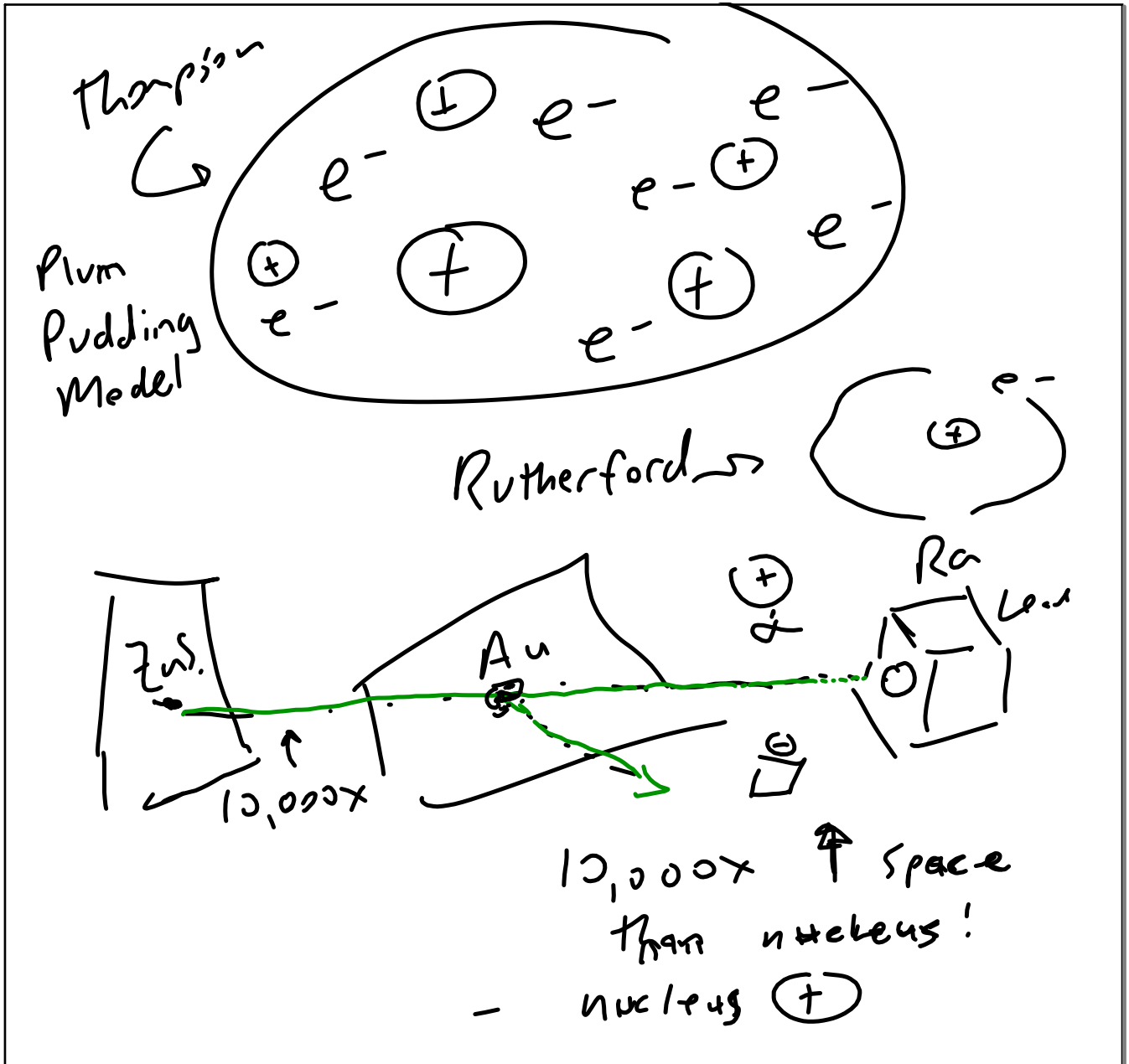
1800s England

Robert Brown → Pollen

Einstein
 1905

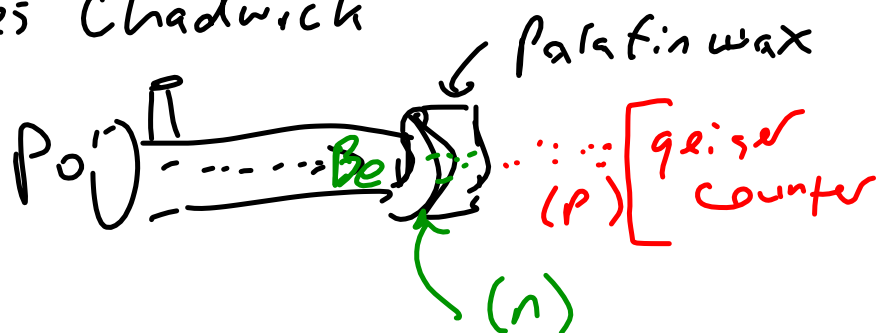






if all the protons are packed so tightly in tiny nucleus, what holds it together? Rutherford figured there had to be a "glue" particle! (n)

1932 James Chadwick



Masses of $n = p$

Matter - mass + volume

Chemistry - study of properties of matter

Substance - single pure form of matter

Phys. property - Δ that doesn't Δ
the substance

Chemical property - Δ into a diff.
substance!

Element - Can't be broken down any further (super pure!) ≈ 90 elements

Atom - Smallest piece of matter
basic ptcl. of elements

Chemical bond - attraction between atoms.

Molecules - 2 or more atoms bonded

Compound - 2 or more atoms in specific ratio + do not act like their atoms
Chemical formula ratio with letters

ex. CO_2 , H_2O , NaCl

Mixture - Subst. not chemically
combined, no ratio

heterogeneous - not evenly mixed

homogeneous - evenly mixed

1st Periodic Table - Mendeleev
 - arranged by - Chemical Behavior
 - Atomic Mass

Atomic Mass - P + N

Atomic # - # P

N? = Atomic Mass
 - Atomic #

Neutrons

Li
 - 7
 - 3

 (4)

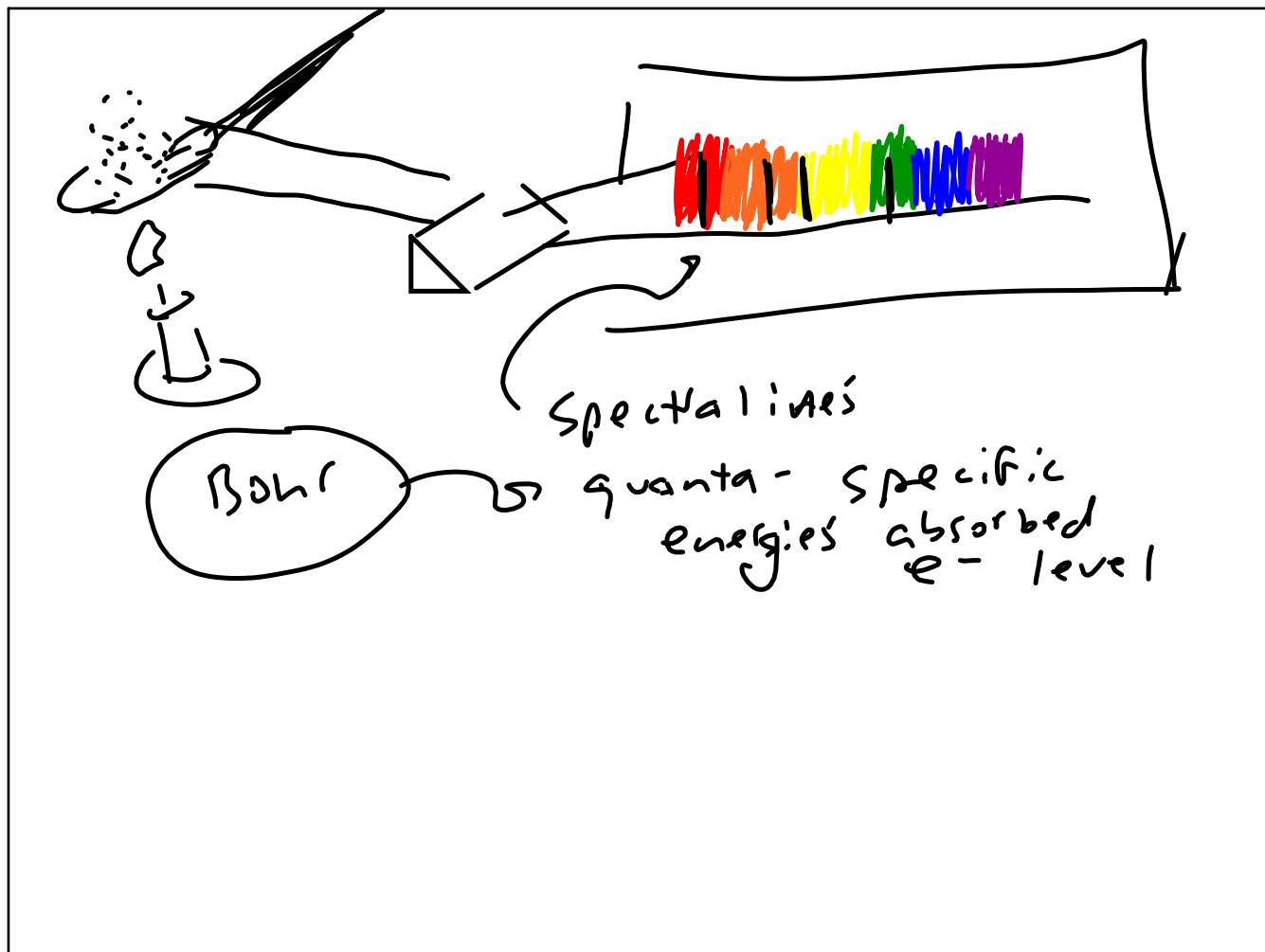
Periods - horizontal rows \uparrow at. #

Groups (families) - vertical columns
similar chemistry

why?

Valence $e^- \rightarrow$ outermost e^-

column	1	2	13	14	15	16	17	18
e^-	1	2	3	4	5	6	7	8



Schrödinger Orbitals

$$1 \quad 2(1^2) = 2$$

$$2 \quad 2(2^2) = 8$$

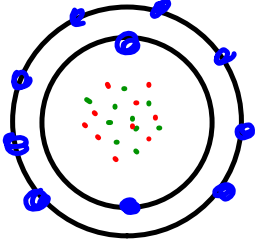
$$3 \quad 2(3^2) = 18$$

$$4 \quad 2(4^2) = 32$$

$$5 \quad 2(5^2) = 50$$

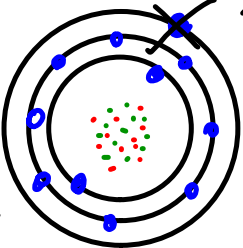
Ne

Mass = 20
 $\frac{H = 10}{\text{Neutrons} = 10}$



Na

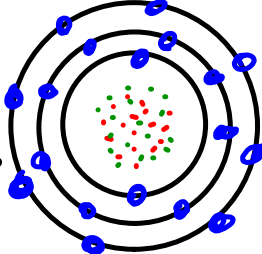
m = 23
 $\frac{H = 11}{n = 12}$



⊕ ion

Cl

m = 35
 $\frac{H = 17}{n = 18}$



⊖ ion

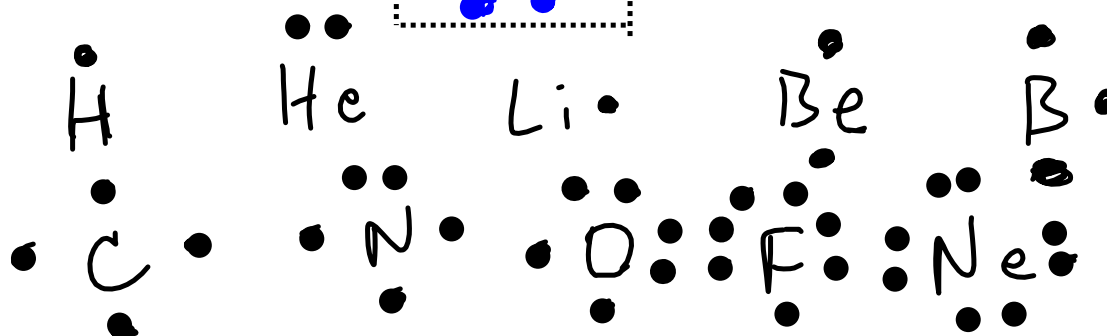
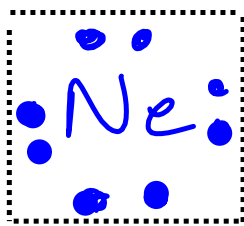
gained or
⊖ ⊕

ion - charged atom
lost electrons

pp. 150-153

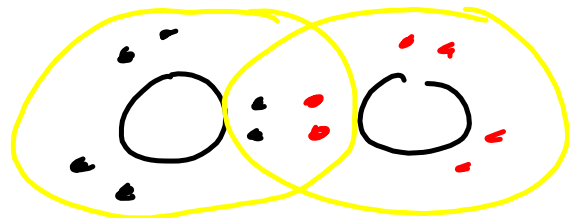
Valence Electrons outermost e^- , highest en. level
 only e^- involved in chemistry.

Electron Dot Diagrams Val. e^- represented by dots
 max of 2 per side imaginary box. (not in corners!)

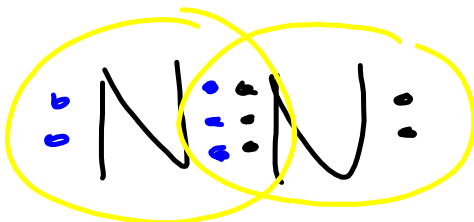


Molecules

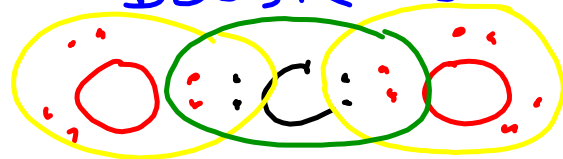
the smallest form el. in nature.



Double bond



Triple bond



Carbon Dioxide

