

W-PS Physical Science Week 15

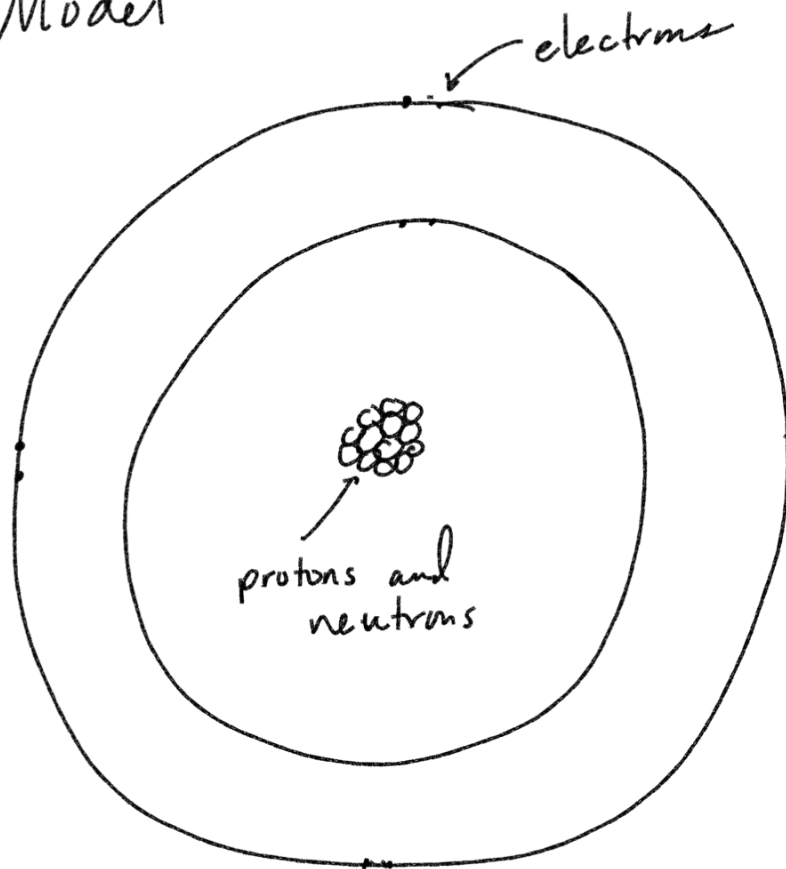
Atom has 3 subatomic particles

protons - relatively large, positive

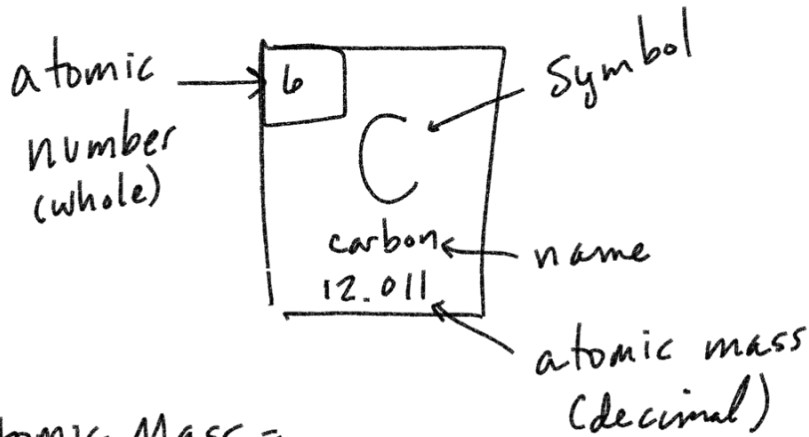
neutrons - relatively large, neutral

electrons - relatively small, negative

Bohr Model



Periodic Table



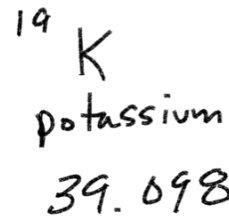
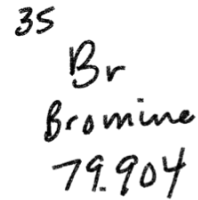
Atomic Mass =
protons + neutrons

Atomic number is the number
of protons

In neutral atom, atomic number is
also the number of electrons



(P^+) protons: 6
(e^-) electrons: 6
(n^0) neutrons: 6



Neutral atoms
have the same
number of protons
and electrons

Atomic mass = number of protons + number of neutrons

$$12.011 = 6 + N$$

$$-6 \quad -6$$

$$6.011 = N$$

Round \rightarrow 6

6.011 is the average
number of neutrons

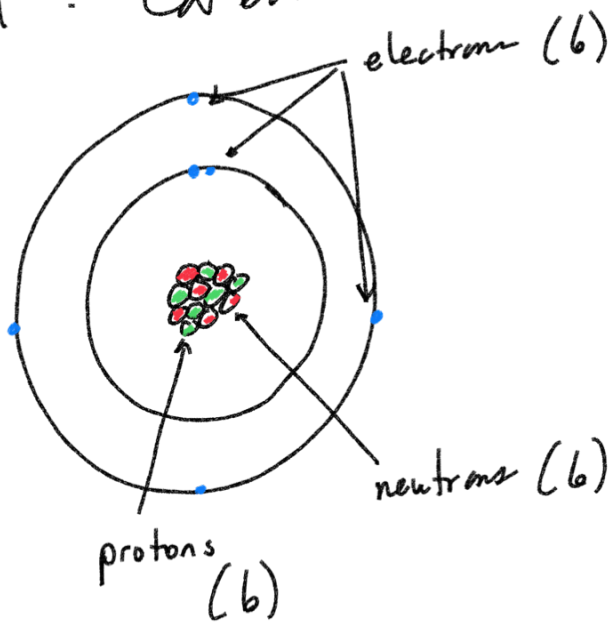
Some elements have versions with a different number of neutrons. These versions are called isotopes.

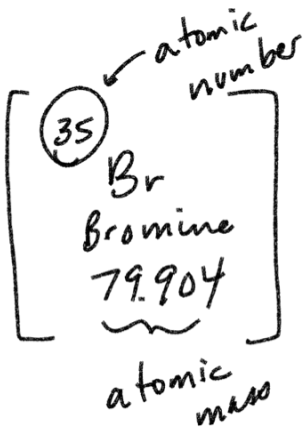
	C-12	C-13 ^{carbon dating}	C-14
P^{\oplus}	6	6	6
n°	6	7	8

The identity of an element is based solely on the number of protons.

6 protons \longrightarrow Carbon

Bohr Model : Carbon





Bromine
 protons: 35
 neutrons: 45
 electrons: 35

$$\text{Atomic mass} = \# \text{ of protons} + \# \text{ of neutrons}$$

$$79.904$$

$$80 = 35 + n$$

$$-35 \quad -35$$

$$45 = n$$

19 K
 potassium
 39.098
 ≈ 39

potassium
 protons: 19
 neutrons: 20
 electrons: 19

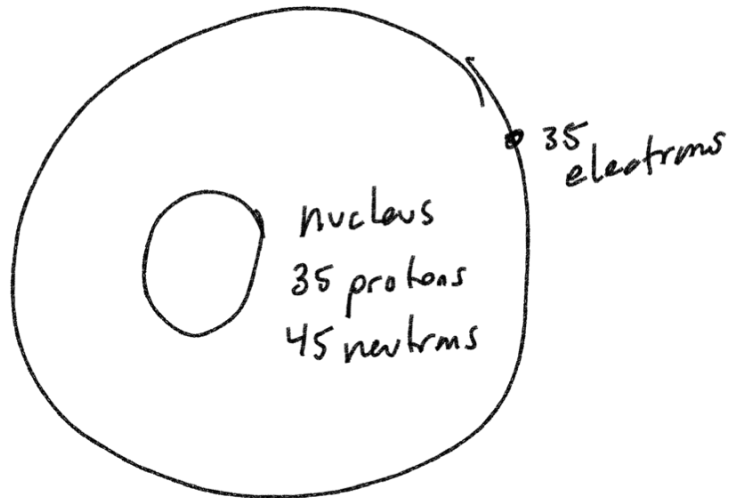
$$\text{Atomic mass} = \# \text{ of protons} + \# \text{ of neutrons}$$

$$39 = 19 + n$$

$$-19 \quad -19$$

$$20 = n$$

Bohr Model: Bromine



Lucas Arsenic (As)

Atomic number: 33 Atomic mass: 74.922
≈ 75

protons: 33
neutrons: 42
electrons: 33

$$75 = 33 + n$$
$$\begin{matrix} -33 & -33 \\ 42 = n \end{matrix}$$

Rylie Cobalt (Co)

Atomic number: 27 Atomic mass: 58.933
≈ 59

protons: 27
neutrons: 32
electrons: 27

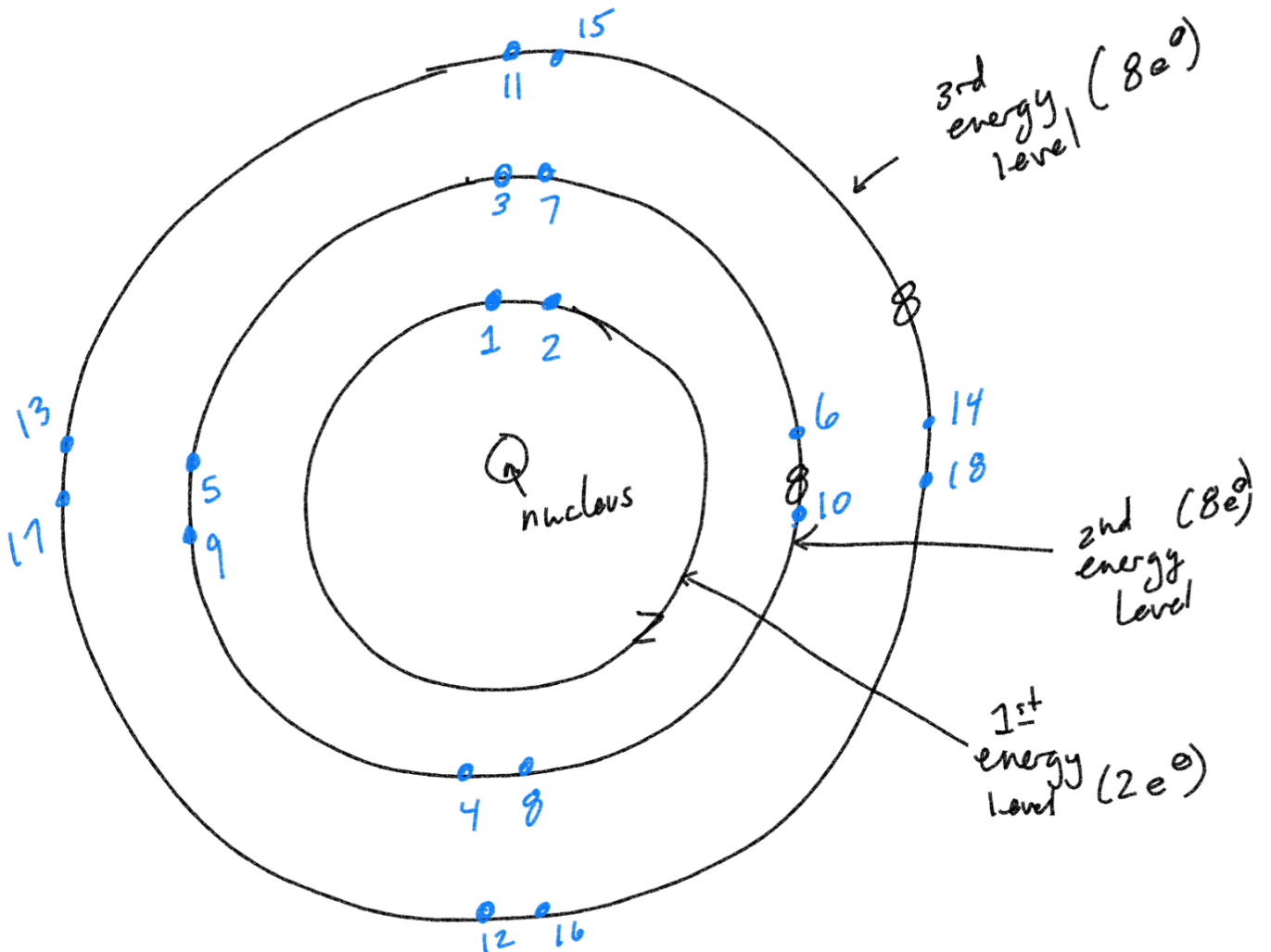
$$59 = 27 + n$$
$$\begin{matrix} -27 & -27 \\ 32 = n \end{matrix}$$

Brayden Scandium (Sc)

Atomic number: 21 Atomic mass: 44.956
≈ 45

protons: 21
neutrons: 24
electrons: 21

$$45 = 21 + n$$
$$\begin{matrix} -21 & -21 \\ 24 = n \end{matrix}$$

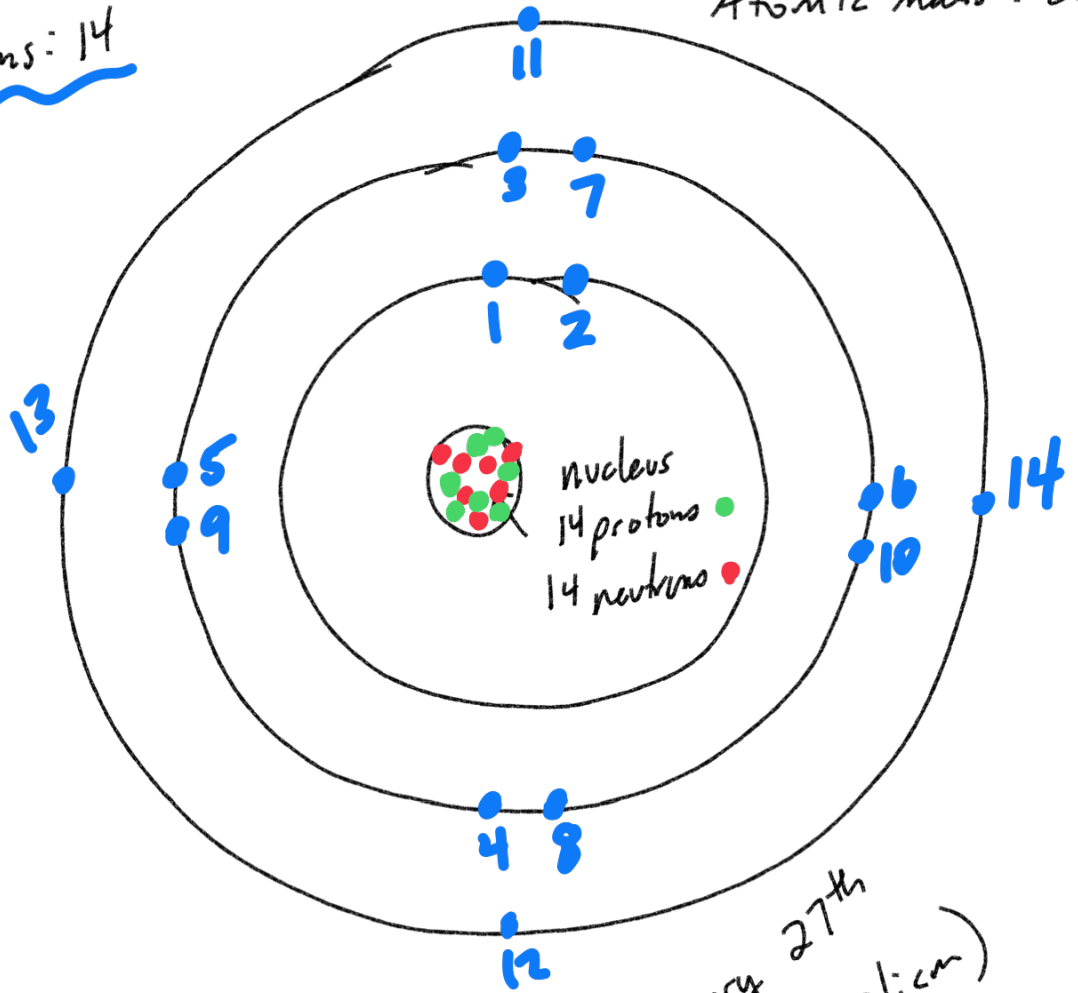


Bohr Model : Silicon

Atomic number: 14

Atomic mass: 28

Electrons: 14



HW

3-D Bohr Model of January 27th
 Atom (Project Grade) (not Silicon)
 Atomic Number 9-18
 Online HW 15
 Quiz 15

January 27th

13 due tonight

No HW/Quiz 14



