

Ms. Tam
Chem
Oct. 5
Per. 4.

Alycia

Complete Handout (1)

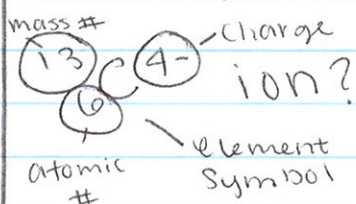
Whatever you do not finish
will be HW.

Page 20 of ~~Handout~~ Handout packet.

#21 will be done in class as
a group.

example.

How many protons, neutrons, and
electrons are present in the



$$\# \text{ of proton} = \text{atomic \#} = 6$$

$$\# \text{ of neutron} = \text{mass \#} - \text{atomic \#} = 13 - 6 = 7$$

$$\# \text{ of electrons} = \text{atomic \#} - \text{charge}$$
$$6 - (-4) = 10$$

This is how 22-25 should
be done.

HW:

packet due Monday!

Science article due tomorrow
(Friday)

Plus look online for
HW to be posted.

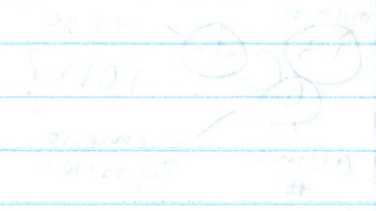
1/12/12

MS. 1000
1000
1000
1000

(1) Complete the following

Indicate the type of reaction
that will occur. Write the
balanced equation for the
reaction.

1. $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
2. $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$



of protons = atomic # = Z
of electrons = $Z - \text{charge}$
of neutrons = $A - Z$

This is how 39-90 elements
are done.

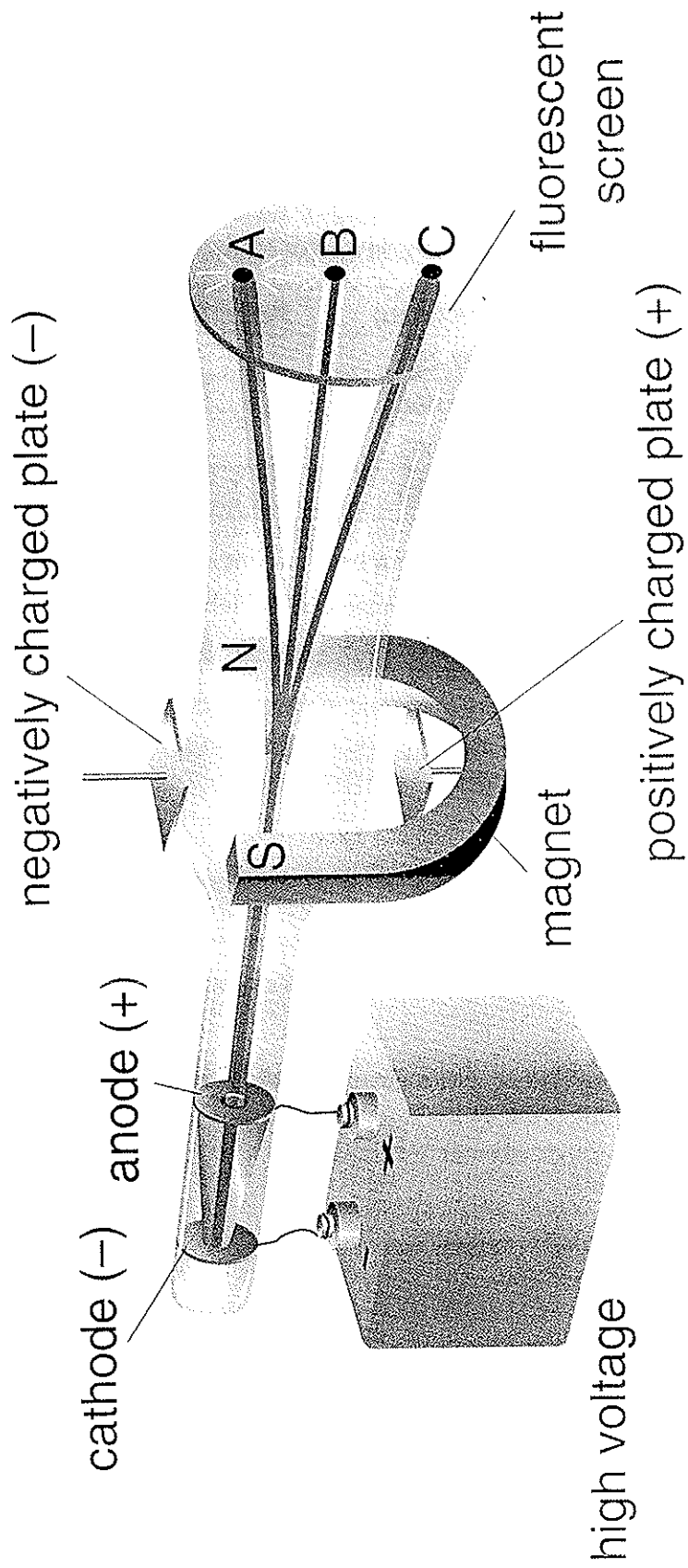
How to do...
Science article...
This look...
How to do...

How:

1000

3 Transparency Master

J.J. Thomson's Cathode Ray Tube



3-3 Apply

Calculating Atomic Mass

Samples of an unknown element X were collected and their masses were recorded. Use the information presented in the data table to answer the following questions.

Isotope	Mass (amu)	Percent Abundance	Mass Number
1	37.765	9.67	
2	39.056	78.68	
3	40.003	11.34	
4	41.060	0.31	

1. Fill in the mass number for each sample of element X in the data table.
2. What is the most common isotope of element X?

3. Calculate the average atomic mass of element X.

4. Use your periodic table to identify element X based on its average atomic mass.

5. What is the atomic number of this element?

6. Draw one atom of this element. Make sure to correctly represent the number of protons and electrons in the atom.

7. This atom forms an ion with a charge of $1+$. Draw a picture representing an ion of this element.

3-3 Review and Reinforcement

Modern Atomic Theory

Complete the following table.

	Subatomic Particle	Location	Charge	Mass (amu)
1.		inside nucleus	1+	
2.	neutron			1
3.			1-	0

If the statement is true, write "true." If it is false, change the underlined word or words to make the statement true. Write your answer on the line provided.

- _____ 4. Moseley discovered that all atoms of an element have the same number of neutrons in their nuclei.
- _____ 5. In an individual, neutral atom, the number of protons always equals the number of electrons.
- _____ 6. When an atom loses or gains one or more electrons, it is called an ion.
- _____ 7. The average mass of an element's atoms is called the atomic number.
- _____ 8. 1 atomic mass unit (amu) is equal to one twelfth of the mass of a carbon-12 atom.
- _____ 9. Atoms with the same number of protons but different numbers of electrons are called isotopes.

Answer each of the following questions in the space provided.

10. How do two isotopes of oxygen, oxygen-16 and oxygen-18, differ from each other in structure? Does this difference affect the chemical properties of these two atoms?

11. How can you calculate the net charge of an ion if you know the number of protons, neutrons, and electrons it contains?

3-3 Review and Reinforcement (continued)

Use the periodic table to determine how many protons, neutrons, and electrons are present in each of the following atoms. Write your answers in the spaces provided.

Atom	Protons	Neutrons	Electrons
12. iodine-125	_____	_____	_____
13. potassium-39	_____	_____	_____
14. iron-56	_____	_____	_____

Write the chemical symbol for each of the ions described below.

- _____ 15. 17 protons and 18 electrons
 _____ 16. 3 protons and 2 electrons
 _____ 17. 12 protons and 10 electrons
 _____ 18. 8 protons and 10 electrons

Use the periodic table to determine the number of protons and electrons in each of the following ions. Write your answers in the spaces provided.

Ion	Protons	Electrons
19. Cu^{2+}	_____	_____
20. F^-	_____	_____
21. H^+	_____	_____
22. Na^+	_____	_____

① $6 - 3 = \underline{\hspace{2cm}}$

② $6 - (-3) = \underline{\hspace{2cm}}$

③ $-3 + 6 = \underline{\hspace{2cm}}$

④ $-3 - 6 = \underline{\hspace{2cm}}$

⑤ $-3 - (-6) = \underline{\hspace{2cm}}$

3-3 Practice Problems (continued)

15. Write the chemical symbol for the ion with 29 protons and 27 electrons.
21. How many protons, neutrons, and electrons are present in the ${}^{13}_6\text{C}^{4-}$ ion?
16. How many protons, neutrons, and electrons are present in the ${}^{59}_{28}\text{Ni}^{2+}$ ion?
22. Write the complete chemical symbol for the ion with 84 protons, 125 neutrons, and 80 electrons.
17. How many protons, neutrons, and electrons are present in the ${}^{91}_{40}\text{Zr}^{4+}$ ion?
23. Write the complete chemical symbol for the ion with 27 protons, 32 neutrons, and 25 electrons.
18. How many protons, neutrons, and electrons are present in the ${}^{140}_{58}\text{Ce}^{3+}$ ion?
24. Write the complete chemical symbol for the ion with 73 protons, 108 neutrons, and 68 electrons.
19. How many protons, neutrons, and electrons are present in the ${}^{79}_{34}\text{Se}^{2-}$ ion?
25. Write the complete chemical symbol for the ion with 31 protons, 39 neutrons, and 28 electrons.
20. How many protons, neutrons, and electrons are present in the ${}^{45}_{21}\text{Sc}^{3+}$ ion?



3-3 Practice Problems

1. How many protons and electrons are present in a vanadium atom?
2. How many protons and electrons are present in a nitrogen atom?
3. How many protons and electrons are present in an argon atom?
4. How many protons and electrons are present in a potassium atom?
5. How many protons and electrons are present in a platinum atom?
6. What is the name of the element that has atoms that contain 5 protons?
7. What is the name of the element that has atoms that contain 17 protons?
8. What is the name of the element that has atoms that contain 25 protons?
9. What is the name of the element that has atoms that contain 82 protons?
10. What is the name of the element that has atoms that contain 92 protons?
11. Write the chemical symbol for the ion with 12 protons and 10 electrons.
12. Write the chemical symbol for the ion with 74 protons and 68 electrons.
13. Write the chemical symbol for the ion with 95 protons and 89 electrons.
14. Write the chemical symbol for the ion with 33 protons and 36 electrons.