

# MONDAY, JANUARY 14<sup>th</sup>

## DO NOW

**Know:** A scientist heated 100.0 mL of liquid Bromine and measured its volume.

**Asked:** Which measurement scale should the scientist use to describe the amount of heat in the solution?

**A:** Mass

**B:** Temperature

**C:** Viscosity

## TODAY'S PLAN

1. Do and review the **DO NOW** and **Qualitative Prompt (QP)**!
  - Today's **QP** = QP QUIZ PREP = SKETCH an Atom with 6 Protons, 6 Neutrons, and 6 Electrons and then REDEFINE the terms Isotope AND Ion!
2. Open books, **WORK** on today's **AO!**
3. \***HW** = READ the SGS and BRING ME your QUESTIONS!

## TODAY'S ACADEMIC OBJECTIVE

Today you will use your Scientific **RESEARCH** in order to **CREATE** a representation of a Chemical Element's Properties!

# THE SGS - STUDY GUIDE SLIDE – ATOMIC BASICS QUIZ

- **Students must KNOW:**

1. What is all Matter made of?
2. What are the 3 parts of an Atom, where are they located, what are their masses & charges, and how can you use the numbers on the Periodic Table to find each one?
3. What was JJ Thompson's contribution to the model of the Atom?
4. What are Groups/Families and Periods on the Periodic Table, and how does the Periodic Table organize the Elements?
5. Know the history of Atomic Theory.
6. What is an Isotope? What is an Ion?

- **Students must be able to DO:**

1. Compare and Contrast Atoms, Elements, Molecules, and Compounds.
2. Locate where Metals, Nonmetals, and Metalloids are on the Periodic Table, and identify the properties of each.
3. Use the Periodic Table to find the Name, Chemical Symbol, Atomic Number, Protons, Neutrons, Electrons and average Atomic Mass of an Element.
4. Draw a diagram of a Neutral Atom using information on the Periodic Table.
5. Find the number of Neutrons in an Atom using its Atomic Mass.



# THE SGS - STUDY GUIDE SLIDE – ATOMIC BASICS QUIZ

## • Students must KNOW:

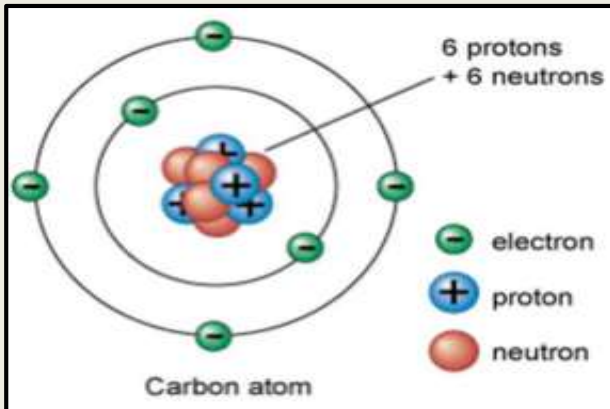
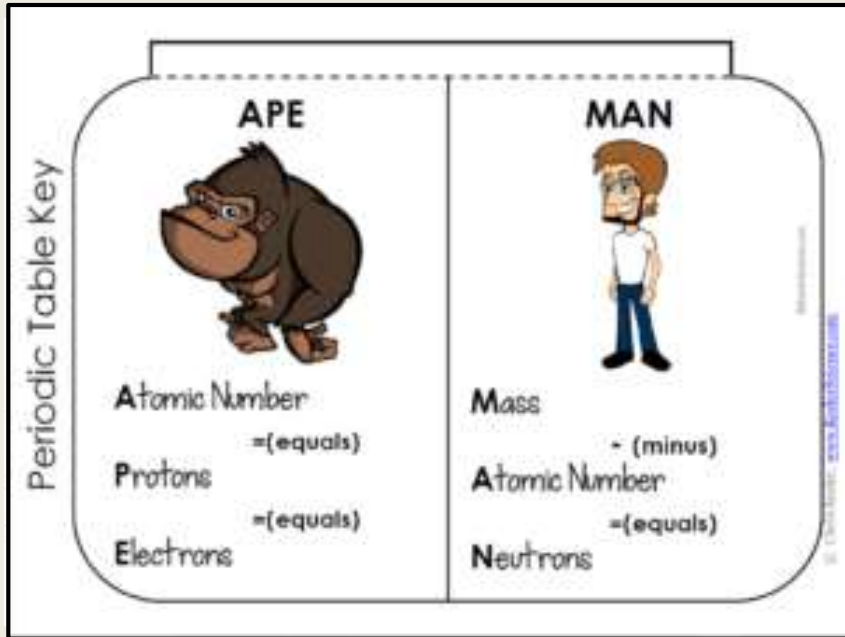
1. Atoms
2. Protons, Neutrons, & Electrons. Protons & Neutrons are in the Nucleus, Electrons are orbiting around. Neutrons are the biggest, then Protons, and then Electrons which are much smaller. Protons are Positive, Neutrons are Neutral, and Electrons are Negative. On the periodic Table the “Atomic Number” is Protons (and Electrons if the Atom is “Neutral”), and the “Mass Number” is Protons + Neutrons (Subtract Mass Number – Atomic Number to find the Neutrons!)
3. He discovered the Electron
4. Groups/Families are Columns, Periods are Rows, and the Periodic Table is organized by increasing Atomic Number
5. See Pg. 160 of your book!
6. Isotope = Version of an Element with a Varying Number of Neutrons. Ion = Version of an Element with a Varying Number of Electrons.

## • Students must be able to DO:

1. Atoms = Basic Particle that makes up all Matter. Elements = Types of Atoms with a Specific Number of PROTONS. Molecules = Two or more Atoms Bonded Together. Compound = Two or more DIFFERENT Atoms (aka Elements!) Bonded Together.
2. Metals are on the left. They are shiny and good conductors. Nonmetals are on the right. They are dull and poor conductors. Metalloids are in the middle, touching the “staircase”. They are “semi-conductors”.
3. See the attached sheet.
4. Draw little circles with a “p” in the middle for Protons and an “n” for Neutrons in the middle for the Nucleus. Then draw circles with an “e” in them for the electrons orbiting around.
5. Round the Atomic Mass. Atomic Mass – Atomic Number = Neutrons

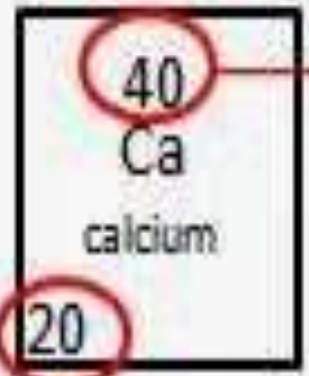


# How To Interpret An Element Box!



$$\# \text{ neutrons} = \text{mass number} - \# \text{ protons}$$

Mass number  $\approx$  Atomic Weight



Mass number  
(always the bigger number)

Atomic number  
(always the smaller number)

Atomic number equals the number of protons or electrons.

Mass number equals the number of protons + neutrons.

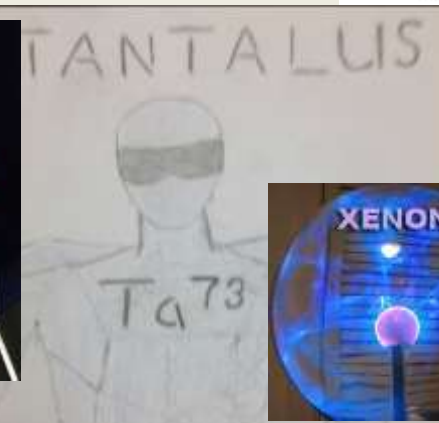
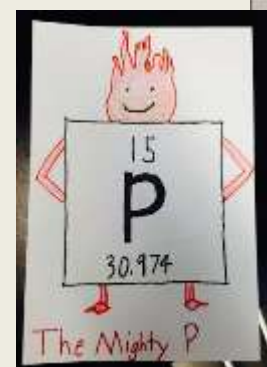
# Science Artwork Steps – Elemental Super Heroes & Villains

1. Take out your TECH CHEX research on your CHEMICAL ELEMENT!
  - i. **NOTE:** You MUST complete your TECH CHEX work before doing today's Science Artwork!
  - ii. **NOTE:** You MUST show me that you have completed this before starting work on your Hero or Villain!
2. Next, grab some ART MATERIALS along with some Construction Paper and DESIGN a Super Hero or Villain with a NAME and Super POWERS that RELATE to the properties/uses of your selected Element!
  - i. **NOTE:** You MUST have the following on your Poster; Hero/Villain Name & Power, Element Name, Symbol, Atomic Number, Mass Number, Number of PROTONS, NEUTRONS, & ELECTRONS, and your **THREE VERY INTERESTING** facts/properties/uses of the Element
3. Finally, answer the HW Problems and Questions!



**Finding Data on Elements**  
Each square of the periodic table includes an element's atomic number, chemical symbol, name, and atomic mass.

Atomic number	26
Chemical symbol	Fe
Element name	Iron
Atomic mass	55.847



# TUESDAY, JANUARY 15<sup>th</sup>

## DO NOW

- In your notebooks, to be checked, solve this problem...  
There are 10 Ångströms in 1 nanometer and 1000 nanometers in 1 micron. These are units of Atomic Length!

### **Know:**

$$10\text{Å} = 1\text{nm} \quad 1000\text{nm} = 1\mu\text{m}$$

**Asked:** How many microns are in 5000 nanometers?

## TODAY'S PLAN

1. Do and review the **DO NOW** and **Qualitative Prompt (QP)**!
  - Today's **QP** = QP QUIZ PREP = LIST the GROUP and PERIOD that the following ELEMENTS are in ALONG with their number of PROTONS (Atomic Number!); Rb, Cs, W, Bi, Ti, Rn, Xe, AND Cf!
2. Open books, **WORK** on today's **AO**!
3. \***HW** = WORK on Element Hero/Villains!

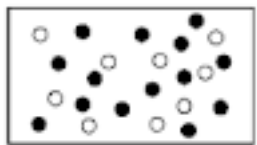
## TODAY'S ACADEMIC OBJECTIVE

Today you will use your Scientific **RESEARCH** in order to **CREATE** a representation of a Chemical Element's Properties!

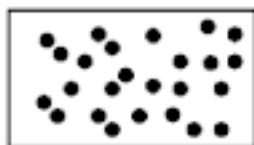
# WEDNESDAY, JANUARY 16<sup>th</sup>

## DO NOW

Know:



Model X



Model Y



Model Z

**Asked:** Which statement **best** describes the model that shows the structure of a molecule?

**A:** Model X since there are two kinds of particles

**B:** Model Y since the particles cannot be broken down

**C:** Model Z since the particles are made of other particles bonded together

## TODAY'S PLAN

1. Do and review the **DO NOW** and **Qualitative Prompt (QP)**!

- Today's **QP** = QP QUIZ PREP = # of NEUTRONS = ATOMIC MASS - ATOMIC NUMBER ! Using this, find the number of **NEUTRONS** in the following Elements; Mn, Xe, Zn, C, Po, & Rn!

2. Open books, **WORK** on today's **AO**!

3. \***HW** = Read the SGS and Bring Questions!

## TODAY'S ACADEMIC OBJECTIVE

Today you will use your Scientific **RESEARCH** in order to **CREATE** a representation of a Chemical Element's Properties!

# THURSDAY, JANUARY 17<sup>th</sup>

## DO NOW

• In your notebooks, to be checked, solve this problem...  
There are 12 Atomic Mass Units in 1 Carbon-12 Atom and 1 Atomic Mass Unit in 1 Dalton. These are units of Atomic Mass!

**Know:**

$$12\text{amu} = 1^{12}\text{C} \quad 1\text{amu} = 1\text{Da}$$

**Asked:** How many Daltons are in 47.8 Atomic Mass Units?

## TODAY'S PLAN

1. Do and review the **DO NOW** and **Qualitative Prompt (QP)**!
  - Today's **QP** = QP QUIZ PREP = DEFINE the term "Valence Electron" and then use Pg. 176-177 to DESCRIBE how Elements in a GROUP are similar!
2. Open books, **WORK** on today's **AO**!
3. \***HW** = STUDY for our **CHEM QUIZ**!

## TODAY'S ACADEMIC OBJECTIVE

Today you will **POWER UP** your Scientific Minds by **REVIEWING** the basics of **CHEMISTRY**!



# FRIDAY, JANUARY 18<sup>th</sup>

## DO NOW

- In your notebooks, to be checked, solve this problem...

There are 12 inches in 1 foot.  
These are units of Review!

**Know:**

$$12in = 1ft$$

**Asked:** How many inches are in 144 feet?

## TODAY'S PLAN

1. Do and review the **DO NOW** and **Qualitative Prompt (QP)**!
  - Today's **QP** = QP QUIZ PREP = Using your book SKETCH an Atom of Helium and LIST 1 property of a Metal, Nonmetal, and METALLOID!
2. Open books, WORK on today's **AO!**
3. \***HW** = STUDY FOR OUR CHEMISTRY QUIZ + WORK ON HERO/VILLAIN POSTERS!

## TODAY'S ACADEMIC OBJECTIVE

Today you will **POWER UP** your Scientific Minds by **REVIEWING** the basics of **CHEMISTRY!**