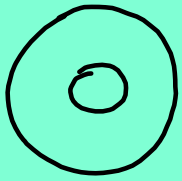
Protons



Location: in the nucleus of an atom

Charge: positive charge (+)

~Number determines Chemical properties of an element

~ Every atom of the same element has the same number of protons called the atomic number (gold is gold no matter where it is found)

~ Define atomic number: The number of protons in the nucleus of an atom

What is the atomic number of potassium?

19, which means it has 19 protons

What is the atomic number of silver? (pg 316-317) 47, which means it has 47 protons

The Periodic table increases/decreases by the atomic number.

Neutrons

Location: Inside the nucleus with the protons

Charge: no charge (neutral)

Protons and neutrons have about the same atomic mass (amu) and make up most of the mass of the atom

*

Atomic mass − Atomic number = neutrons

Electrons in the cloud

Location: The space outside the nucleus.

Charge: Negatively charged(-)

Mass of electrons compared to protons and neutrons is considerably less

neutral atoms: have equal number of protons and electron parts so to find the number of electrons you look at the atomic number

~Electrons are hard to find because they move so fast in the cloud Shells / rings

electrons in the cloud are specific distances away from the nucleus.

~ The higher the atomic number (protons) the more electrons in the shells in the cloud

- ✓ Shell One: only 2 electrons
- ✓ shell two: Eight only (8) electrons
- shell three: Eighteen(18) electrons but we are only learning up to 8. We are not drawing elments past period 3
- ☆ Outer. shell is the valence shell

2 8 8

11

Atomic Number: number of protons and electrons

Na – Chemical Symbol

Chemical name ← Sodium

Atomic mass → 22.990

the mass Of The entire atom

To Find neutrons: Atomic mass − Atomic number = Neutrons

sodium has 11.990 -neutrons

Periodic Table Practice

Use activity from class to answer the follow up questions

how many electrons in outer valence

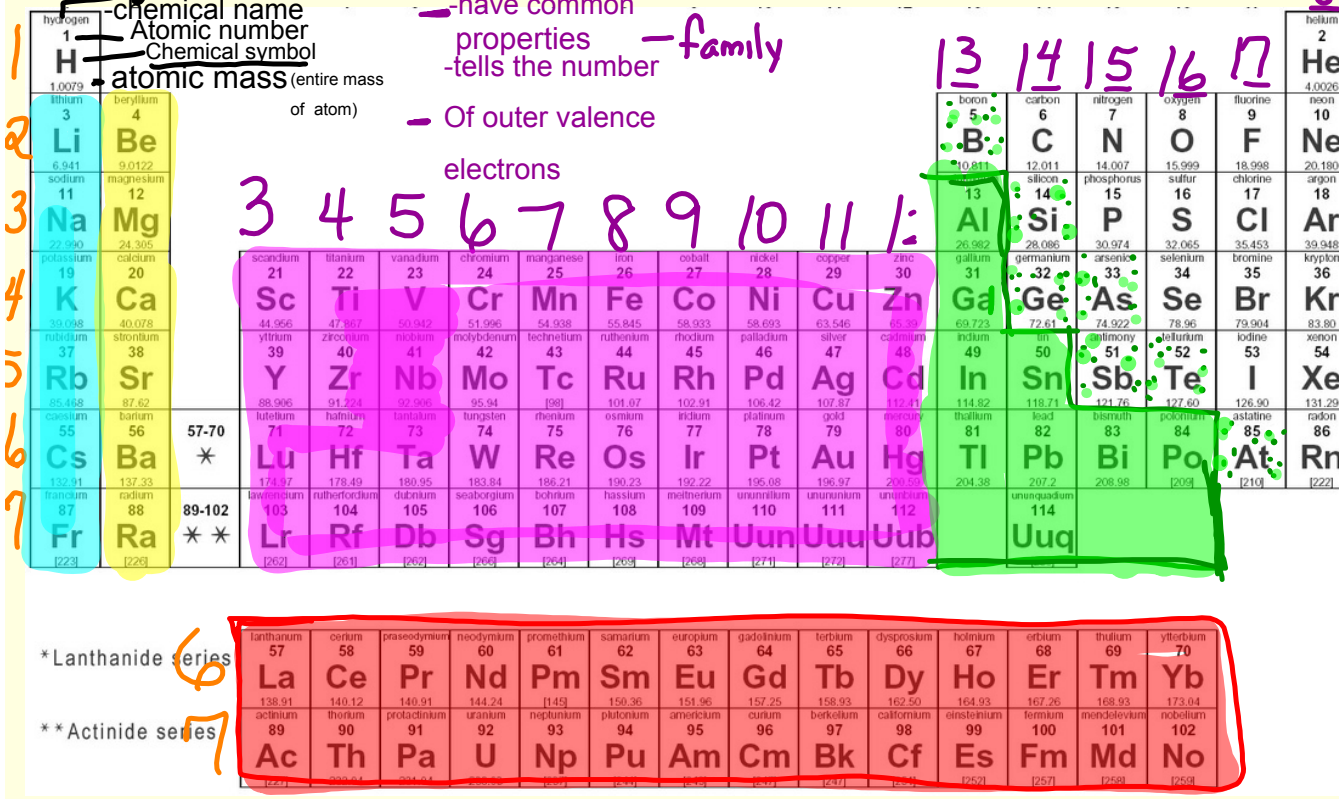
less reactive metals

Most reactive metals

period → rows
tell us the number of shells in an atom

group ↓ columns
-have common properties
-tells the number Of outer valence electrons
-family

-chemical name
Atomic number
Chemical symbol
atomic mass (entire mass of atom)



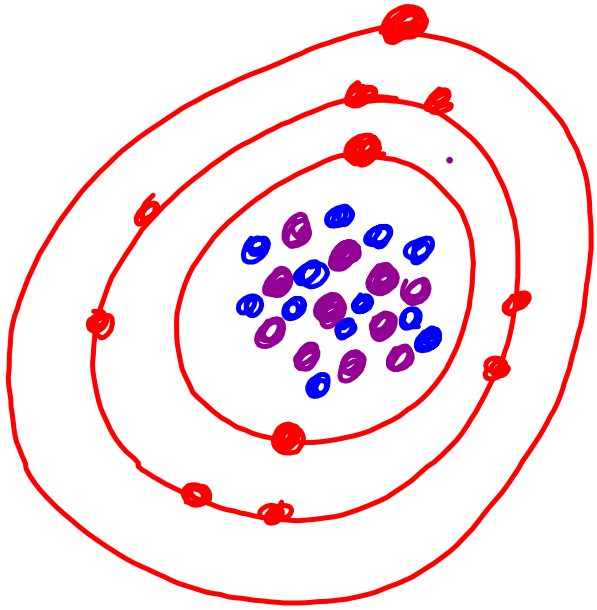
- **Alkali metals** : Most reactive metals
  - Alkaline Earth Metals: Reactive but not like Alkali
  - Transition metals

- **Metals in a mixed group**
  - Lanthanides and actinides
  - metalloids

REVIEW:

Organizing elements.docx

11

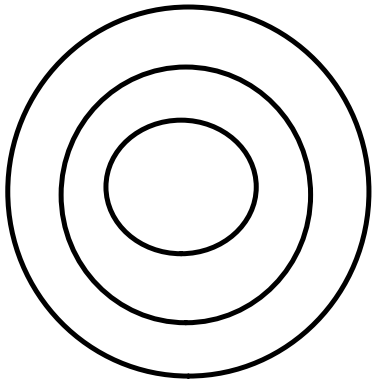


electron

protons

neutrons

1)



Sodium

electrons

protons

neutrons

Atomic mass

- Atomic number

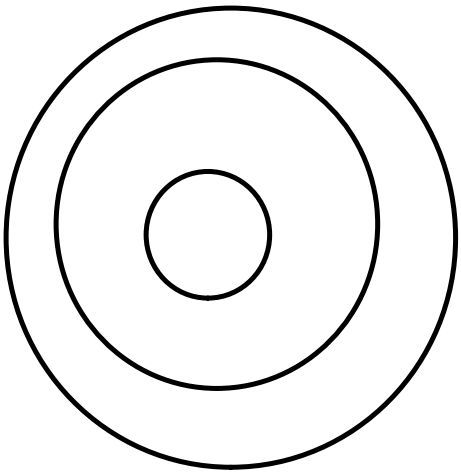
key to help you:

To find the # Of protons: look at atomic number

2) To find The electrons: Look at the atomic number

3) To find the neutrons: Subtract the atomic number from the atomic mass

Silicon



1st shell:

2nd shell:

3rd shell:

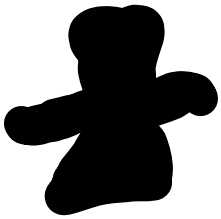
MY FAVORITE ALIEN.docx

Things to think about?

1. atomic number (electrons and shells)
2. atomic mass -neutrons protons
3. Groups and periods
4. Properties of an element

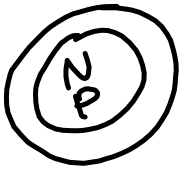
↳ electrons in the shell

Where is my favorite alien???



Key:

arms = shells



fingers = electrons

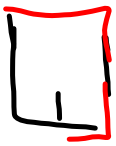
clothing = group/common properties

faces = antenae = electrons in the outer valence

smiles/frowns

group - tells me . . . common properties # of electrons in the outer valence

periods = tells me . . . There is change # of shells

in the box = 

atomic #

how many protons

how many electron

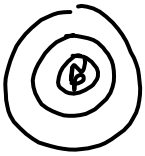
I. Phosphorous

2. 10
3. 8

4.4

5. 1st shell =2 electrons 2nd=8 electrons
3rd= 8 electrons

6 1st=2 2nd=8 3rd =3



7. The smiles show that the outer valence is either complete or near complete
frowns need to Find many electrons to complete the Valence

8. The number of electrons in the outer shell

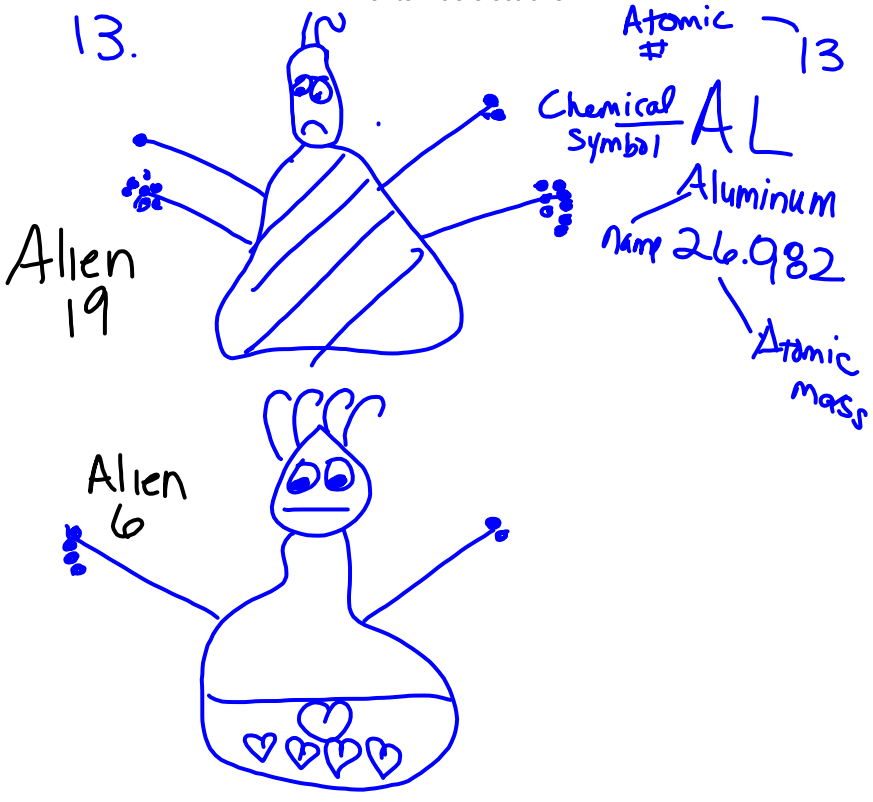
9. 6 electrons

10. 4 electrons

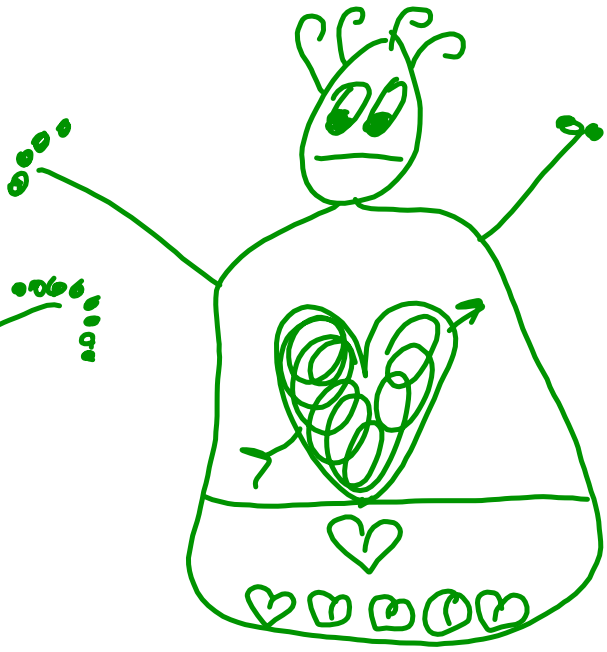
11. Helium Neon Argon
2, 10, 18

12. clothing , outer valence antennae electrons

13.



alien 19



alien 6

Metal Vocabulary

Chapter 9, Lesson 1 Vocab.doc

Metals on the periodic table

Types of Metals blank periodic table.docx

Properties of Metals

WorksheetWorks_Properties_of_Metals_1.pdf

3

Metals are elements that have melting points which cause Them to expand. They are good conductors of thermal energy and electrical energy. They are shiny, they are bendable

-The majority of elements in our universe are metals.

Use: wires, door knobs, hinges, cart, signs, clips, DVR, lights, fan, Jewlery, electrical outlet, shelving unit, light, chair legs

Thermal conductivity: The ability for Thermal (heat) energy to pass through

Luster: shiny

Malleable: Can be shaped

electrical conductivity: an electric current can pass through

ductile-pulled or stretched into a wire.

reactivity: The ease and speed that an element combines with other elements

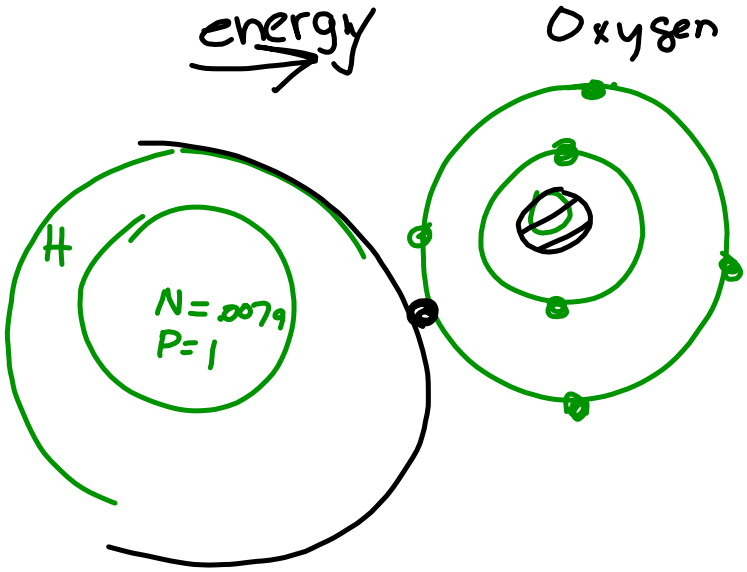
Group 1 most reactive group (Alkali) metals

corrosion: reaction with 02 (Oxygen) that deteriorates the metal

It is the slow

ex. rusty car, Statue of liberty

1. 2
2. 8
3. 8



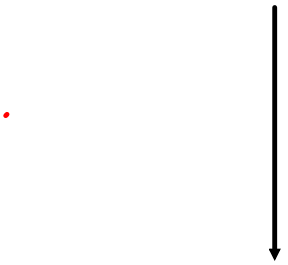
What needs to be written for each of the non-metal groups

1. elements in the family (group)
2. properties in common
3. how used in real world

324-327

WorksheetWorks_Compare__Contrast_Types_of_Metals_3.pdf

SCROLL DOWN



1	2	3-12	13-16
most reactive group	highly reactive	It get less reactive from group 3-12	~~less~~ low reactivity
Solids -never found as uncombined fireworks salt medicines batteries	never found uncombined solid Calcium-bones vitamins	Solid except for mercury thermometers astronaut visors, wires.	solids/ liquids. coins bikeframes cans of paint can food auto batteries
low	high	high	high
low	high	high	high

Work with your group to find the notes

low
melting
point

high
melting

high
melting
except mercury

high

low
less than H2O

higher
Than
alkali

high

low

fireworks
plastic
batteries
knives.

x-rays
bone health
calcium
food, med.

Jewlery
Astronaut
visors

Paint
frame of bikes
Canned foods

used in pipes
batteries

laser
-lights during Surgeries
-hunting
laser range finders
Medical Prof.

Solid

solid
never found
uncombined

solid
Mercury
liquid room tmp

liquid
Solid

made in factories
labs.

most
reactive

high
reaction

reactivity
gets less
b/w 3-12

low

Unstable

Group 1
except hydrogen

Group
2

3-12

13-16
atoms, 6, 14,32,7, 15
33 51, 8.16
34, 52

Period 6

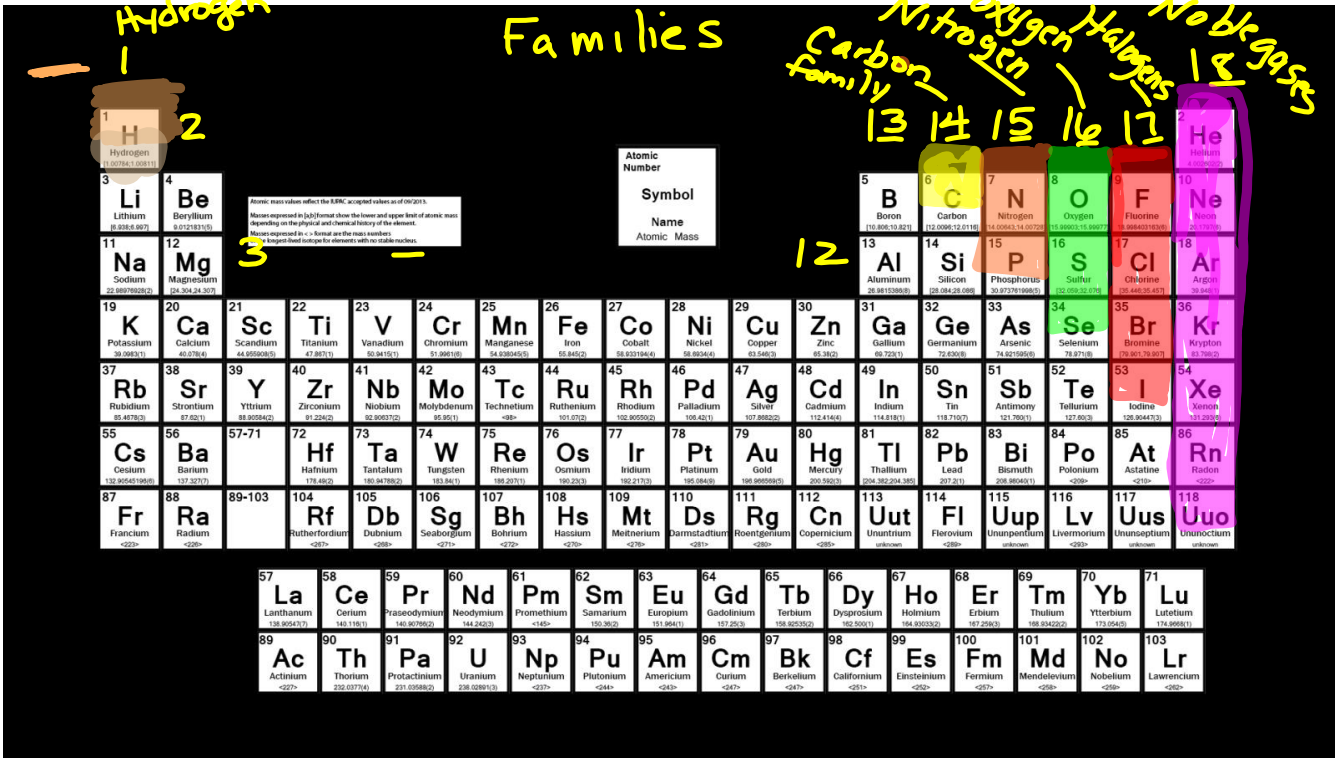
period 7

Metals scavenger hunt.docx

Non-metals

Chapter 9, Lesson 3 Vocab.doc

Non-metal



Halogen: The most reactive non-metal family on the periodic table.

Noble gases: Are the least reactive family on The periodic table

Hydrogen family-is only Hydrogen and it is placed with The alkali metals because it is the most reactive non-metal element.

Properties of non-metals

Physical

- poor conductors of electrical energy
- dull (not shiny)
- brittle (break apart)
- less dense than metals
- poor conductor of heat

Chemical

reactive they can join with other atoms to form new substances except for noble gases

Mr. Parr atom song

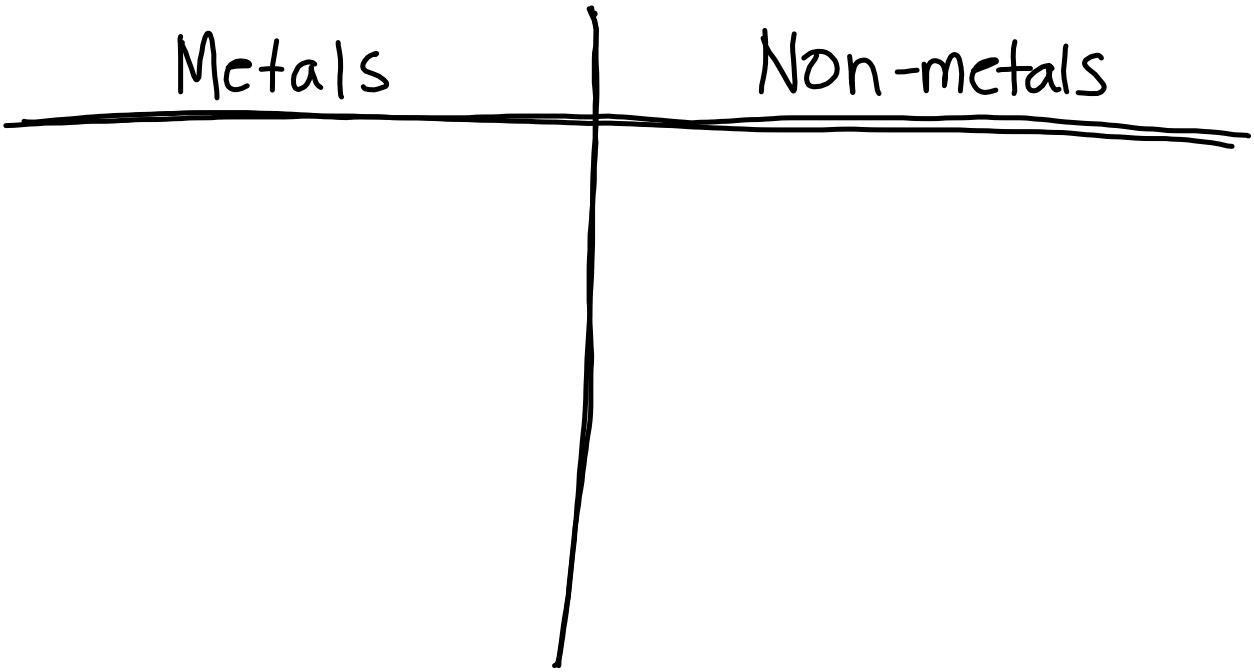
Mr. Lee Atom song

Brain pop (will only pull up if you have an account)

Metals/ Non-metals quick activity

answers

Non-Metal	Metal
1. Poor conductor act act as insulators	1. Good 2. conductors of electricity
2. Poor conductors of heat act as insulators	3. Good conductors of heat
3. Produce a dull sound when struck	4. Make a clear ringing sound when struck (sonorous)
4. Dull in appearence	5. Shiny in appearance
5. Tend to shatter when hit hard	6. Easy to bend
6.Most are gases, some are solids	7. Most are solids
7. Low density	8. High Densities


Metals
Non-metals

Identifying Metals and Non-metals

Identifying metals and nonmetals.doc

Unlocking the Big Questions

Key Concept 1: what information does the periodic table contain?

atomic #

atomic mass made original? periodic Table

periods / groups practice

pgs 311-319 pg 12&13

NB

Key Concept 2: What are the properties of metals? pg 321-323 pg 23N B

Key Concept 3: How are metals classified

Types of metal / Pg 20 NB pg 324-327 book

Key Concept 4: What are the properties of non-metals pg 329-336 book Pg 23 NB

Key Concept 5: What are the families containing non-metals

Pg 331-335

Chemical Reactions Vocabulary

Valence Electrons

Chemical Bond

Physical Change

Products

Exothermic Reactions

Matterlectron Dot Diagram

Chemical Change

Reactants

Precipitate

Endothermic Reactions

Law of Conservation

32

Where's the beef

Initial mass covered-

Initial temp

Take cover off

light stick, blow stick out

remove the cover and the place

The stick in the flask

Observations:

End mass

End temp

Make a claim about open systems

and their affect on mass during chemical change

Evidence:

Reasoning

Evidence

Reasoning

Matter: is anything that has mass and takes up space. It is made from atoms.

Properties

Physical Properties	Chemical Properties
* Observable (seen with our eyes) characteristics that do NOT change the matter!	* Observable characteristics that do DO change the matter!
Examples: 1. Color (spilling coffee On paper) 2. Smell scent diffuser 3. Freezing/ Melting point Viscosity (how thick a fluid is)	Examples: 1. pH -Acid, base neutral 2. Reactivity with water 3. Tendency to corrode 4. Flammability
Physical Changes	**Chemical Changes**
* Changes that do NOT result in forming a new substance Evidence: 1. Changes in shape or form 2. Breaking apart Size Changing the state of matter (liquid, gas, solid)	* Changes that DO result in forming a new substance Evidence: 1. Bubbling or fizzing 2. Change in color 3. Smoke 4. Visible flames 5. Heat or light given off 6. Precipitate (liquid changes b/c of chemical reaction to a solid)

3 S's

Reactants: the original substances used In a chemical reaction prior the change.

↳ milk and vinegar reactants in cottage cheese. (chemical reaction of making)

Product: The new substance That forms when the reactants go through a chemical change. curds In cottage cheese

Exothermic → Energy is required for this tye of reaction. Energy is given off at the end Of The reaction. More energy is given off Than is required to break and join atoms with another atom. Feels warm.

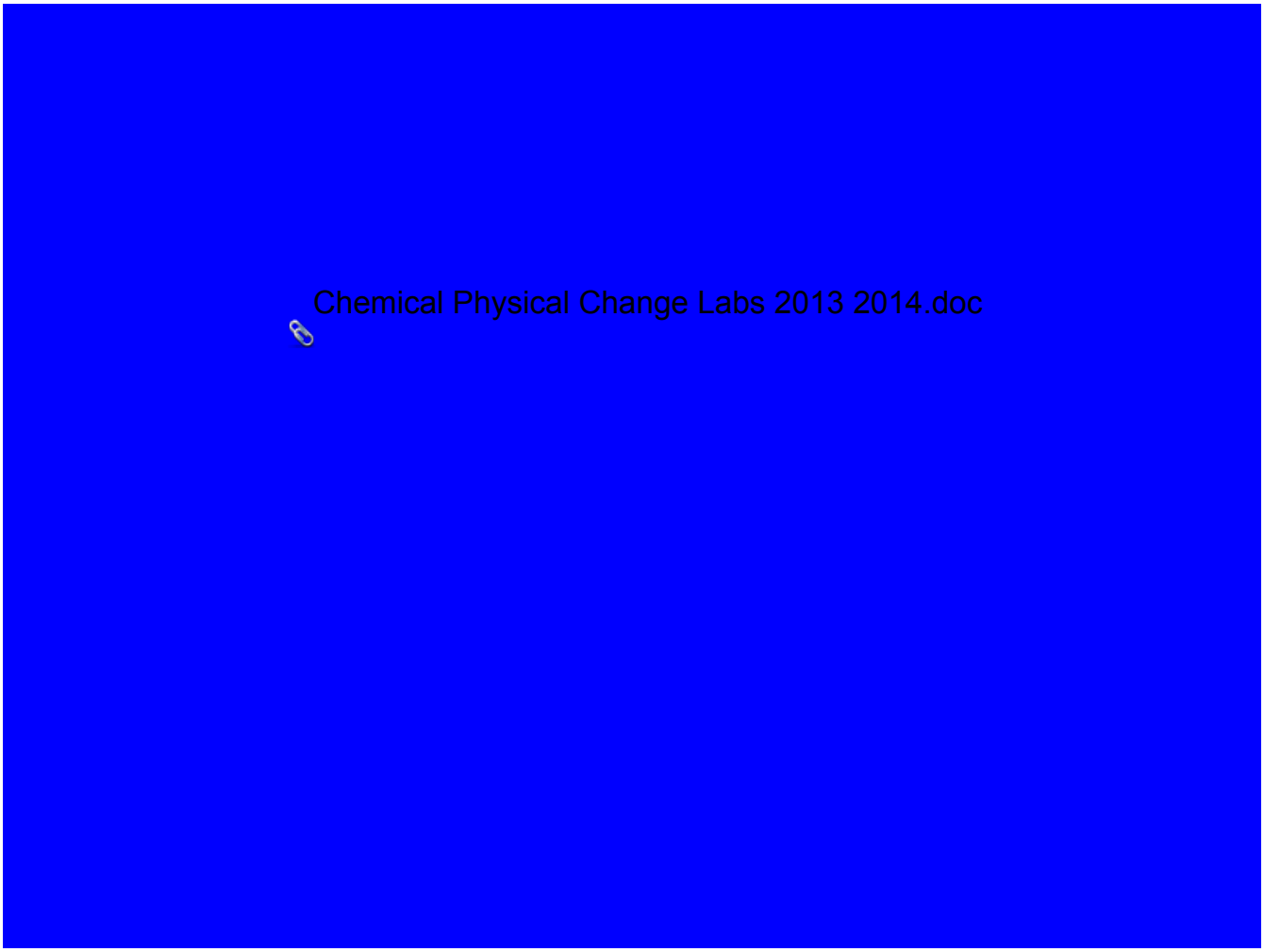
Endothermic → Energy is needed for this reaction and given off at the end of the reaction. More energy is required in the beginning to break or join the atom's bonds, Than is given off at The end of The reaction. It feels cool

Law of conservation of Mass) Matter

-when atoms go Through. a chemical or physical reaction the matter is still present so the mass 'doesn't change.

Beware of open system because matter (gas, liquid or solid) Can enter or leave the system which will effect The mass

A closed system means no matter can leave or come in so the mass stays the same.


Chemical Physical Change Labs 2013 2014.doc

Loopy electron bonds.docx

Chemical Physical Change Labs 2013 2014.doc

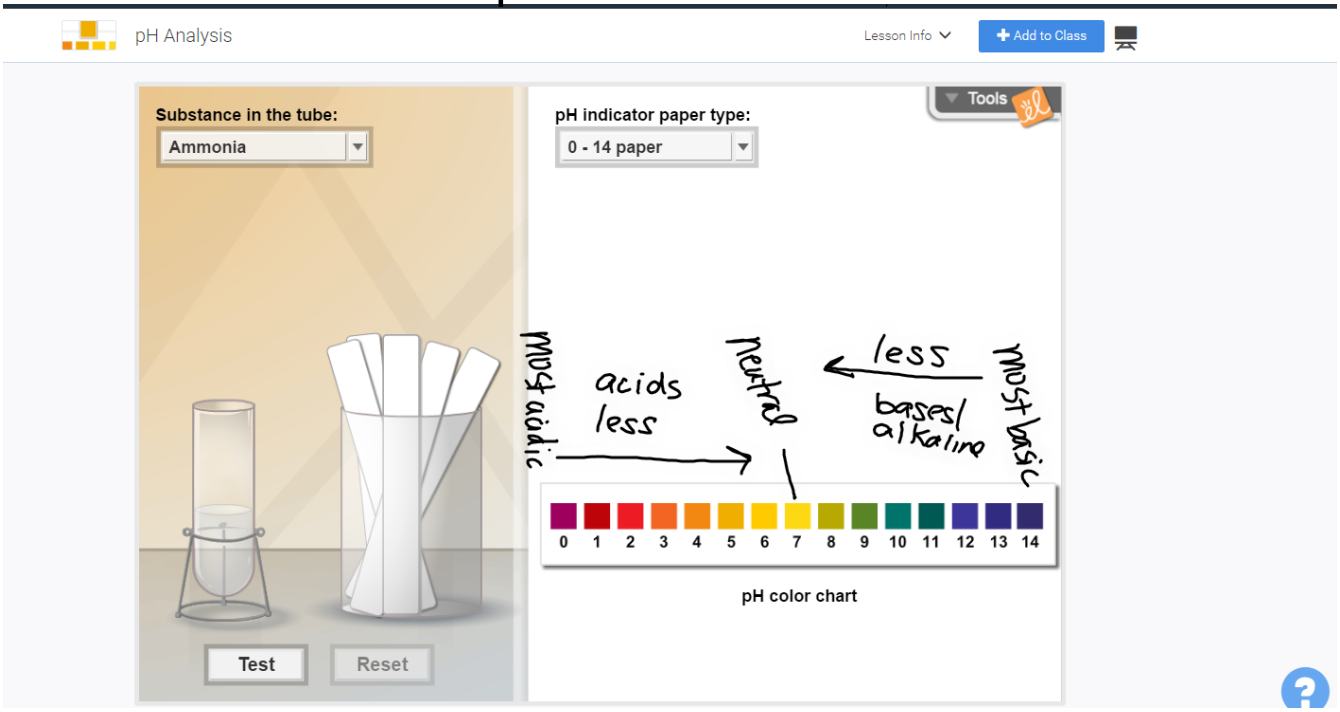
Grow Creature Lab

Matter Matters Lab.doc

Ch. 11, Lesson 1 and 3.doc

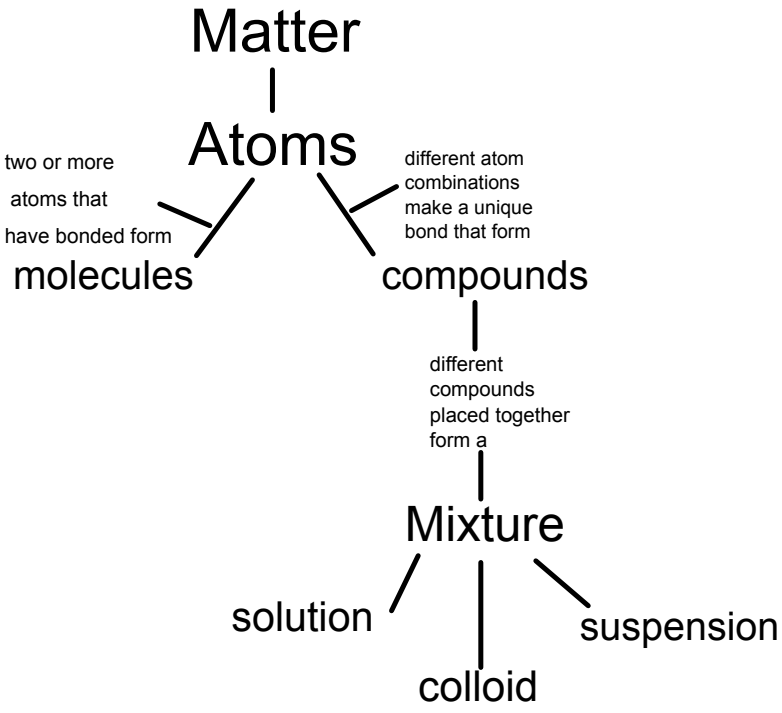
pH analysis Lab

pH Gizmo


pH Analysis
Lesson Info
Add to Class
Substance in the tube:
Ammonia
pH indicator paper type:
0 - 14 paper
Tools
most acidic
acids less
neutral
less
bases/ alkaline
most basic
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
pH color chart
Test
Reset

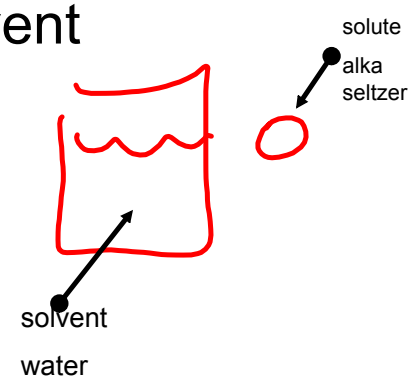
- Solubility and Temperature Gizmo

pgs 402-407 in science book


Matter
Atoms
two or more
atoms that
have bonded form
molecules
different atom
combinations
make a unique
bond that form
compounds
different
compounds
placed together
form a
Mixture
solution
colloid
suspension

Mixtures: solution, Colloid, suspension

solute: a substance that is (break apart) dissolved by a solvent



Solvent: Is a part of a solution. It is usually

The largest amount. It aids

The solute in dissolving

solubility: - How well substances mix together

substance	dissolve
sugar	dissolved completely (solution)
pepper	did not dissolve completely (suspension
vinegar	dissolved completely (solution)
sand	did not dissolve (suspension
chalk	dissolved Colloid (Could See The beam of light)

Did It Dissolve

Attachments

- Virtual Lab link
- Mr. Parr atom song
- Mr. Lee Atom song
- Brain pop (will only pull up if you have an account)
- Chemical Physical Change Labs 2013 2014.doc
- Chapter 9, Lesson 1 Vocab.doc
- Ch. 11, Lesson 1 and 3.doc
- Properties of Matter and the Changes Matter Can Go Through 370 377.doc
- Solubility and Temperature