Presentation Plan

Lesson Name: Matter_____
Presenter(s) Hoai Ngo_____

Grade Level 5 **Standards Connection(s)** Physical Science

Abstract:

Students will be given a broad overview of various types of matter, components of matter, states of matter, and their properties. Students will be given a brief introduction about the components of matter. Each student will use beads to make atoms, molecules, elements, and compounds. Afterwards physical properties and physical changes will be demonstrated by using an orange and an apple as examples. To illustrate chemical properties and chemical change, I will burn a piece of paper and add baking soda to vinegar. Students will be divided into groups of five. Each group will receive a handout and will be asked to classify the physical changes and chemical changes according to the picture. All groups will post their answers on the board. The presentation will close by reviewing concepts learned.

Vocabulary/Definitions

Matter, Physical properties, Chemical properties, Atom, Molecule, Compound, Chemical change, Physical change, Element

Matter: anything that occupies space and has mass.
Atom: smallest whole particle of an element
Molecule: a particle of matter made of two or more atoms joined tightly together
Elements: substances that are composed of only one type of atom with its own unique properties
Compound: contain two or more different elements in a chemically combined form.
Physical properties: properties such as color, and density, which can be observed and measured without changing the composition of a substance.
Chemical properties: properties that give a sample of matter the ability/inability to undergo a change that alters its composition
Chemical change: a change that result in the production of another substance
Physical changes: a change that does not result in the production of a new substance.

Materials:

Presenter will bring these materials:
markers,colors, an orange, an apple, a scale, vinegar, baking soda, and a small balloon.

Classroom Set-up:

1. *One station will be set up at the front table to demonstrate the reaction between baking soda and vinegar. Another will be the burning paper and measurement of an orange and apple's weight.*
2. *Students should be able to gather up front for the demonstration and sit in groups of 5 at desks for discussion. During discussion, the presenter will need access a chalkboard.*

Classroom Visit

1. Personal Introduction: __2_____ Minutes

My name is Hoai Ngo. I'm a second-year college student and I'm currently participating in a teaching course. I have a great interest in physical science, especially chemistry. I will give a broad overview of what matter is.

Topic Introduction: _____3____ Minutes

Does anyone know what matter is? Can anyone give me some examples of matter? What are the components of matter? Everything around you is made up of matter. Chocolate cake is made up of matter. You are made of matter. If you are having trouble understanding matter, then look all around you. As you can see matter makes up the walls of your house and in your classroom. Matter is large, and matter is small. What kinds of properties does matter have?

Today I am going to talk about matter- anything that occupies space and has mass. Matter is made of atoms and molecules.

2. Learning Experience(s): _____40____ Minutes

Components of matter

1) *Let's take a look at the bead. Anything you see and can feel is made of atoms. Matter is made of atoms and molecules. All atoms and molecules are too small to be seen with the naked eye or even a microscope.*
2) *Give examples of these terms. Students use markers and colors to draw atoms, molecules, compounds, and elements*

-An atom *Ex: Hydrogen atoms, oxygen atoms*

-A molecule *Ex: Oxygen or water molecules*

-Elements *Ex: iron elements*

-Compounds*= consist of many molecules. These molecules have to be made of two or more different atoms. Ex: water*

Properties of matter:

Elements have all kinds of different properties: color, luster (how shiny it is), how hard it is, flexibility, smell, weight, the ability to react with other substances. Different matter has different properties. These properties are divided into 2 groups: physical properties and chemical properties.

Physical properties:.

Presenter will bring an apple and an orange. Students use their sense of taste and smell to tell the difference between an apple and an orange. Students will be required to observe the apple and the orange and tell the difference, such as color, odor, mass, volume, density and taste.

Presenter also introduces some new concepts such as volume, mass, and density.

Volume *is the quantity of three-dimensional space occupied by a liquid, solid, or gas. Ex: Presenter measures the volume of a small rock by using cylinder.*

Mass *is the measure of the amount of "stuff" in something. Ex: Presenter measures the mass of the same rock by using scale.*

Density *is mass per volume. Ex: Students calculate the density of that rock based on number provided.*

Chemical properties: The presenter will perform two experiments that can be used to illustrate chemical properties.

1. *Burn a piece of paper*
2. *Pour vinegar into a bottle; add baking soda . Cover the bottle's cap with a balloon to see if the gas inflates it*

What are the differences of the paper before and after the experiment? What are the differences of the shape of the balloon before and after the experiment?

After the demonstration, I will ask the students signs of chemical changes.

Game:

Students will play a game. They will be divided into groups of 5 people. Each group will be provided with cards of the chemical and physical changes Students will discuss within their groups and classify the category that each picture belongs to. The answers will be discussed in class. At the end the presenter will notify which group is the winner of the game.

3. Wrap-up: Sharing Experiences and Building Connections _____10____ Minutes

Putting the pieces together *–Make comparisons between vocabularies as a way to wrap-up the lecture so that the students can review what they have learned.*
After the lecture - *Students should be able differentiate between atoms and molecules, mixtures and compounds,and physical and chemical properties.*

4. Close: _____5 Minutes

Distribute take-home worksheet.

60____ Minutes

Matter Worksheet

1. Milk turns sour. This is a _____

- Chemical Change
- Physical Change
- Chemical Property
- Physical Property
- None of the above

2. Wood sawed in two is _____

- Physical Change
- Chemical Change
- Physical Change
- Chemical Change
- None of the above

3. Sugar is dissolved in water

- Chemical Change
- Physical Change
- Chemical Property
- Physical Property
- None of the above

4. Aluminum Phosphate has a density of 2.566 g/cm3

- Chemical Change
- Physical Change
- Chemical Property
- Physical Property
- None of the above

5. Which of the following are examples of matter?

- A Dog
- Carbon Dioxide
- Ice Cubes
- copper (II) nitrate
- A Moving Car

6. The formation of gas bubbles is a sign of what type of change?

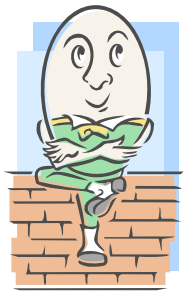
7. True or False: Bread rising is a physical property.

8. True or False: Dicing potatoes is a physical change.

9. Is sunlight matter?

10. The mass of lead is a _____property

Physical and Chemical Changes



- On your desk, place the "**Physical Change**" card to your left and the "**Chemical Change**" card to your right.
- Using what you know about physical and chemical changes, place each card into the correct category.
- Record your data in the chart below.

Data Table: Physical vs. Chemical Changes

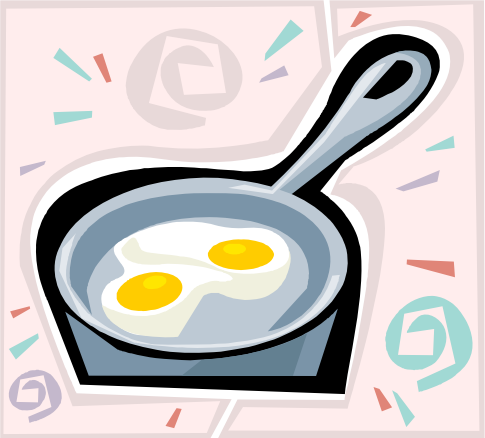
Physical Change	Chemical Change

Analysis:

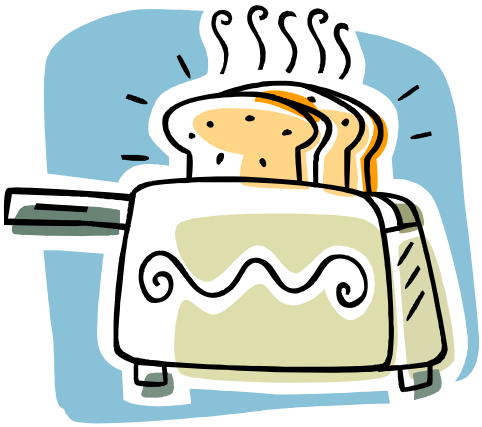
1. **Were there any cards you had trouble classifying? Why/Why not?**
2. **Give an example of a physical change that was not listed above.**
3. **Give an example of a chemical change that was not listed above.**

Conclusion: 2-3 complete sentences on what you learned.

Cut along dotted lines and paste into lab journal



Frying eggs



Toast

Cracking eggs

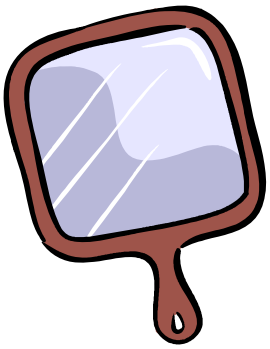
Slicing Bread

Lighting a Match

Roasting Marshmallows

Rusty Nails

Ice Melting



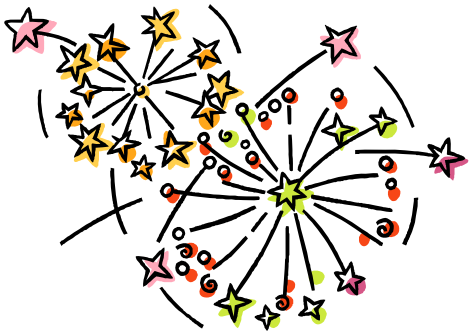
Glass Breaking

Boiling Water

Fresh Lemonade

Baking a Cake

Mowing the Lawn



Fireworks

Digesting Food

Physical Change

Chemical Change