**Chemical and Physical Properties Activity Packet Answers**

**All answers below serve as examples; your answers may vary depending on the types of materials used in class.**

**Part A. Large Group Data Chart.**  Complete the chart below as the class evaluates different objects.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Item | Physical properties | Chemical properties |
| 1 | ***Fancy dress*** | ***Soft***  ***Can rip***  ***Can be cut***  ***Blue (or whatever color)***  ***pliable***  ***solid at room temperature***  ***blue***  ***somewhat soluble in water (absorbs water)*** | ***Can burn***  ***Must be dry cleaned***  ***Doesn’t irritate skin***  ***Can be bleached (ruin by bleached)***  ***Can be stained***  ***Can be eaten***  ***Will probably react with your body and make you sick if eaten*** |
| 2 | ***Plastic (water bottle, bags, etc.)*** | ***Waterproof***  ***Can be cut or torn***  ***Has a Low melting point***  ***Floats on water (less dense than water)***  ***Odorless***  ***colorless***  ***flexible***  ***not brittle*** | ***Can burn***  ***Doesn’t react with water***  ***Doesn’t irritate skin***  ***Will probably react with your body and make you sick if eaten***  ***Doesn’t react with flavored water, juice, milk, soda, protein drinks—doesn’t react with many things***  ***Can be cleaned normally (with soap and water)*** |
| 3 | ***Silly Putty*** | ***Flexible***  ***Malleable***  ***Solid a room temperature***  ***Insoluble in water***  ***More dense than water*** | ***Doesn’t react with your skin***  ***Will probably react with your body and make you sick if eaten***  ***Probably burns?***  ***Doesn’t react to water***  ***Cannot be cleaned normally (with just soap and water)*** |
| 4 | ***Almond milk*** | ***Liquid a room temperature***  ***Soluble in water***  ***Has a freezing temperature similar to that of water*** | ***Can be consumed***  ***Reacts with your body and makes you healthy***  ***Doesn’t make lactose intolerant people sick (react with their body)***  ***Can be used to make yogurt***  ***Can be cooked*** |
| 5 | ***Apple*** | ***Solid at room temperature***  ***Red, green, white***  ***Insoluble in water (when not cooked)***  ***Can be smashed*** | ***Can be cooked***  ***Can be eaten***  ***Reacts with your body and makes you healthy when eaten***  ***Doesn’t react with skin***  ***The inside reacts with the air (turns brown) but the outside doesn’t*** |
| 6 | ***School glue*** | ***Liquid at room temperature***  ***White***  ***Thick/viscous***  ***Soluble in water***  ***Can be frozen?*** | ***Can be eaten***  ***Nontoxic***  ***Doesn’t react with skin***  ***May irritate eyes***  ***Can burn??*** |

**Part B. Vocabulary Review. What you put in this Section is based upon the needs of your students.**

**Part C. Individual Definition.** When instructed, silently study the chart that your class just completed. Write a definition for the terms below

1. Physical property – **a property that can be observed without a chemical reaction; some will say a property that can be observed using the five senses—that is ok at this level**
2. Chemical property – **a property that can only be observed when attempting a chemical reaction**

**Part D. Group Definition.** (See above) Make sure the students are circling and underlining according to their instructions.

**→→→→**

**Part E. Individual data chart:**  Evaluate the items provided. Complete the chart.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Item | Two Physical properties | Two Chemical properties |
|  |  | ***Solid, liquid, gas at room temp***  ***Can be frozen, melted, evaporated easily***  ***Info about color***  ***Info about odor***  ***Info about taste***  ***Flexible/rigid***  ***Viscous/not viscous***  ***Brittle (breaks easily)***  ***Can be broken, cut, torn, etc.***  ***Soft/hard***  ***Strong***  ***Soluble/Insoluble in water***  ***Malleable***  ***Fragile/Tough*** | ***flammable (or not flammable)***  ***will/won’t irritate skin, eyes, nose, etc***  ***makes you sick if ingested (eaten, etc.)***  ***gives you a headache, rash, bumps, itchy skin,etc.***  ***turns skin red***  ***improves our health***  ***builds your muscles***  ***strengthens your teeth***  ***strengthens your bones***  ***gives you energy/makes you sluggish***  ***makes you gain weight***  ***helps you stay trim***  ***will/won’t spoil***  ***kills germs***  ***cleans/doesn’t clean cuts***  ***can be cleaned regularly/has to be dry cleaned***  ***cleans other things (skin, clothes, etc.)***  ***changes colors of clothes (bleach)***  ***can be colored or dyed***  ***is/isn’t living***  ***can/cannot grow*** |

**Part F. Elements and their properties.** Choose 2 elements from the Periodic Table. Look up 4 physical properties and three chemical properties of each element.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Element | Physical properties (2 points per box) | Chemical properties (2 point per box) |
|  |  | ***solid, liquid, gas, etc.***  ***melting temp of . .***  ***boiling temp of . .***  ***info about color***  ***malleable***  ***ductile***  ***density***  ***high/low mass***  ***atomic number***  ***has isotopes***  ***shiny***  ***No points given for any words they don’t know the definition of such as***  ***ionization energy***  ***electronegativity***  ***paramagnetic*** | ***Reacts with . . .***  ***Used to make soap, food, clothing, etc.***  ***Bubbles when reacting with. . .***  ***Turns colors when reacting with . . .***  ***Toxic/Nontoxic***  ***Causes coughing***  ***Eye, nose, throat, skin, etc. irritant***  ***No points given for anything that they don’t know the definition*** |

**Part G.** Who cares about chemical and physical properties?

Answers.

1. Name a substance not yet mentioned and one of its ***physical*** properties.

***Plastic is waterproof.***

1. Explain the property influences how we use the substance.

***Because plastic is waterproof, we use it for water bottles****.*

1. Name a substance not yet mentioned and one of its ***chemical*** properties.

***Iron, when exposed to oxygen and water, creates rust***

1. Explain the property influences how we use the substance.

***We often manufacture iron-based items with other materials (for example, steel) in order to make them stronger.***

1. Who cares about chemical and physical properties? Why?

***We do because it influences how we use things.***