**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.***