**GPS – Properties and Atoms Intro Notes**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_\_

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| I can… |
| *Define the parts of an atom.*  *Distinguish between properties of a substance.* |

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| Notes |
| ***Bellwork***: Write down three examples of any **elements** you remember. |
| 1. ***Elements***  * Basic building blocks of \_\_\_\_\_\_\_\_\_\_\_\_\_. * Combine to form all \_\_\_\_\_\_\_\_\_\_\_\_ of matter. * \_\_\_\_\_\_\_\_\_\_\_\_ be broken into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * More than \_\_\_\_\_\_\_\_\_\_\_\_ elements. * Most are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| 1. ***Physical properties of metals***  * Conduct \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Shiny (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) * Bendable (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) |
| 1. Fill in the chart below. |
| 1. ***Atom***  * The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an element that still has the   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of that element.   atom |
| 1. ***Compound***  * Made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of elements. * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of compounds often \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   from the properties of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that make them up.      * Ex: C6H12O6 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (sugar) * 6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms * 12 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms * 6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms |
| 1. ***Atomic Theory – The beginning***   Democritus believed that the tiniest particle was the atom, which was the smallest thing that could \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.    He also thought that atoms were made of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that formed into different shapes and sizes. |
| 1. ***John Dalton’s Atomic Theory***   Based on scientific \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, John Dalton published a theory in 1803. His theory states these ideas:   * All substances are made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Atoms are small particles that cannot be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * Atoms of the same element are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. and the atoms of different elements are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * Atoms join with other atoms to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| 1. ***Disagreeing with Dalton***   As scientists were able to gather new data, more discoveries about the atom showed some mistakes with Dalton’s theory.  J. J. Thompson discovered with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that atoms contained \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-charged particles called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. He came up with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ model. |
| 1. ***Rutherford’s Atomic Discoveries***   Later, one of Thompson’s students named Ernest Rutherford discovered the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-charged particles in the center of the atom. |
| 1. ***Bohr’s Model and Modern Theory***   With more experiments and evidence, Niels Bohr developed his model named after himself, called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ model.  This model represents a small, positively-charged \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ surrounded by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that travel in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ around the nucleus.  Modern Theory developed by scientists, especially Schrodinger and Heisenberg, states that electrons are found in probable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |

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| ***Atom Building Pre-Lab*** |
| 1. Sketch an atom with 2 neutrons, 2 protons, and 2 electrons. Label the charges of each particle also. |
| 1. Pick between Democritus model, Thompson’s model, and the modern Bohr model of the atom. Write your choice below. |
| 1. You will build an atom tomorrow. Sketch and describe your materials and procedure for building the model. |