**FPS –Atomic Theory Notes**

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

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| I can… |
| *Define the parts of an atom.*  *Distinguish between historic models of the atom.* |

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| Notes |
| 1. ***Atom***  * The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an element that still has the   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of that element.   atom |
| 1. ***Compounds – Counting atoms***  * 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***   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 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.  *Atomos* 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 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***   http://wps.prenhall.com/wps/media/objects/4677/4789519/images/aabjusna.jpgAs 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***   http://www.daviddarling.info/images/Rutherford_gold-foil_experiment.jpg Later, one of Thompson’s students named Ernest Rutherford discovered the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-charged particles in the center of the atom.  He designed the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ experiment. |
| 1. ***Bohr’s Model and Modern Theory***   With more experiments and evidence, Niels \_\_\_\_\_\_\_\_\_\_\_\_ 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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| ***Graphical Representation*** |
| Democritus’s Ideas – *Atomos* – 400 B.C.E.  Dalton’s Theory – *Indestructible Sphere* – 1803  Thomson’s Model – *Plum-Pudding* – 1897  Rutherford’s Model – *Dense Nucleus* – 1911  Bohr Model – *Bohr Model* – 1913  Modern Theory – *Electron Cloud Model* – 1926 |

***Let’s Review…***

1. How were Democritus’s ideas different from Dalton’s ideas?
2. Why did J. J. Thompson call his model the “plum-pudding” model?
3. How did Rutherford, one of Thompson’s students, change the plum-pudding model to his own?
4. What made Bohr’s model different from the others?
5. What is different about the modern theory from the older models of the atom?