Science 10 Mr. Harwood  
Number #

**Intro to the Atomic Theory**

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| Slide 2 - Matter   * What is matter? * What is matter made up of? |

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| Slide 3 – Atoms   * What are atoms made up of? * What are subatomic particles? |

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| Slide 4 – Subatomic Particles   * What are the 3 types of subatomic particles? |

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| Slide 5 - Protons   * Represented as: * Have a +1 electrical charge   + Positive Protons * Have a relative mass of ~ * Located in the atom’s |

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| Slide 6 – Neutrons   * Represented as: * Has no electrical charge   + No charge neutrons * Have a relative mass of ~ * Located in the atom’s |

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| Slide 7 - Electrons   * Represented as: * Have a -1 electrical charge   + Negative electrons * Have a relative mass of ~ * Located in the atom’s |

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| Slide 8 – Comparing the 3 Subatomic Particles   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | Symbol | Electrical Charge | Relative Mass | Location in the Atom | What it accounts for | | Protons |  |  |  |  |  | | Neutrons |  |  |  |  |  | | Electrons |  |  |  |  |  | |

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| Slide 9 – Anatomy of an Atom   * Nucleus = * Electrons = |

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| Slide 10 – Atomic Number and Mass   * Atomic Number * Atomic Mass |

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| Slide 11 – Neutral Atoms   * There are the same number of p+ in an atom as e-  * Together, these two charges cancel each other out, making the atom neutrally charged * **Example:** Potassium (K) has an atomic number of 19. That means there are 19 protons in the nucleus. That means there are also 19 electrons in the atom. |

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| Slide 12 – Practice   * For Boron:   + What is the atomic number?   + What is the atomic mass?   + How many protons are in the atom?   + How many neutrons are in the atom?   + How many electrons are in the atom? |

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| Slide 13 – Practice   * For Silicon:   + What is the atomic number?   + What is the atomic mass?   + How many protons are in the atom?   + How many neutrons are in the atom?   + How many electrons are in the atom? |
| Slide 13 – Nuclear Charge   * Nuclear Charge = * Since the protons are the only subatomic particle in the nucleus with a charge, **the nuclear charge = the number of protons** * Atomic # = * The atomic number for Carbon is 6. That means there are 6 protons in the nucleus. That also mean that the nuclear charge is +6.    + What are the nuclear charges on the rest of these elements? |

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| Slide 14 – Review   * What are the charges on the subatomic particles? * What particle(s) account for the atom’s mass? * What particle(s) account for the atom’s volume? * What is a neutral atom?   Homework   * + Read pg. 170-171   + Complete the Atomic Structure WS |

**Atomic Structure Worksheet**

*Fill in the blanks for the elements in this chart.*

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| **Element** | **Element Symbol** | **Number of Protons** | **Number of Neutrons** | **Number of Electrons** | **Atomic Mass** | **Atomic Number** | **Nuclear Charge** |
| lithium |  |  |  |  |  |  |  |
|  |  | 6 |  |  |  |  |  |
|  |  |  |  | 17 |  |  |  |
|  | Ag |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 82 |
|  |  |  |  |  | 40.1 |  |  |
| tantalum |  |  |  |  |  |  |  |
|  |  |  |  |  |  | 88 |  |