

**PART I. Answer the questions based on the above reading.**

1. What is an isotope? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. What does the number next to isotopes signify? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. How can you tell isotopes of the same element apart? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PART II. For each of the following isotopes, write the number of protons, neutrons, and electrons. Assume all atoms are neutral.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Carbon-12 | Carbon-13 | Carbon-14 |
| # of protons |  |  |  |
| # of neutrons |  |  |  |
| # of electrons  |  |  |  |

|  |  |  |
| --- | --- | --- |
|  | Chromium-58 | Chromium-63 |
| # of protons |  |  |
| # of neutrons |  |  |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|   | Nitrogen-15 | Nitrogen-20 |
| # of protons |  |  |
| # of neutrons |  |  |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|  | Sulfur-23 | Sulfur-25 |
| # of protons |  |  |
| # of neutrons |  |  |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|   | Selenium-50 | Selenium-55 |
| # of protons |  |  |
| # of neutrons |  |  |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|   | Sodium-12 | Sodium-20 |
| # of protons |  |  |
| # of neutrons |  |  |
| # of electrons  |  |  |

**PART III.** **Fill in the isotope names and any missing information on the chart. Use your periodic table and the information provided. Assume all atoms are neutral.**

|  |  |  |
| --- | --- | --- |
|   |  |  |
| # of protons | 25 |  |
| # of neutrons | 17 | 15 |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|   |  |  |
| # of protons | 32 |  |
| # of neutrons | 30 | 32 |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|   |  |  |
| # of protons |  |  |
| # of neutrons | 48 | 51 |
| # of electrons  |  | 46 |

|  |  |  |
| --- | --- | --- |
|   |  |  |
| # of protons |  |  |
| # of neutrons | 113 | 111 |
| # of electrons  | 55 |  |

|  |  |  |
| --- | --- | --- |
|   | Iron- | Iron- |
| # of protons |  |  |
| # of neutrons | 27 | 30 |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|   | Iodine- | Iodine- |
| # of protons |  |  |
| # of neutrons | 32 | 35 |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|   | Germanium- | Germanium- |
| # of protons |  |  |
| # of neutrons | 33 | 36 |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|   |  -10 |  -12 |
| # of protons |  | 6 |
| # of neutrons |  |  |
| # of electrons  | 6 |  |

|  |  |  |
| --- | --- | --- |
|   |  -54 |  -56 |
| # of protons | 24 |  |
| # of neutrons |  |  |
| # of electrons  |  |  |

|  |  |  |
| --- | --- | --- |
|   |  -22 |  -25 |
| # of protons |  |  |
| # of neutrons |  |  |
| # of electrons  | 11 |  |