**6.1 CLASS WORKSHEET**

**1. Nuclear symbols - a review**

**Use this template for nuclear symbols and equations:**  ⟶ +

|  |  |  |
| --- | --- | --- |
| (a) | Define the term “atomic number”. |  |
| (b) | Define the term “mass number”. |  |
| (c) | Define the term “isotopes”. |  |
| (d) | Write the symbol for an atom containing  90 protons and 131 neutrons |  |
| (e) | Give the name of the atom in (d) |  |
| (f) | Deduce the number of protons and neutrons in |  |

**2. Principles of nuclear stability and radioactivity**

|  |  |  |
| --- | --- | --- |
| (a) | Describe an alpha particle and give its chemical symbol. |  |
| (b) | Describe a beta particle and give its chemical symbol. |  |
| (c) | Describe what happens inside a nucleus as a beta particle is emitted. |  |
| (d) | What is gamma radiation? Why is gamma radiation sometimes released alongside alpha and beta particles? |  |

**HOMEWORK 6.1A**

1. **Nuclear equations vs Chemical Equations**

Briefly summarise the main differences between nuclear equations and chemical equations in the table below:

|  |  |
| --- | --- |
| Nuclear equations | Chemical Equations |
|  |  |

1. **Writing nuclear equations**

|  |  |  |
| --- | --- | --- |
| (a) | Complete the nuclear equation to show the emission of an alpha particle by radium-224 | ⟶ + .......... |
| (b) | Write a nuclear equation to show the emission of an alpha particle by americium-241 |  |
| (c) | Complete the nuclear equation to show the emission of a beta particle by actinium-228 | ⟶ + .......... |
| (d) | Write a nuclear equation to show the emission of an beta particle by oxygen-18 |  |
| (e) | Polonium-216 is formed when another atom releases an alpha particle. Complete the nuclear equation for this reaction. | ………… ⟶ + |
| (f) | Nitrogen-14 is formed when another atom releases a beta particle. Write a nuclear equation for this reaction. | ………… ⟶ + |

[Click here to go straight to the Exit Ticket](https://docs.google.com/forms/d/e/1FAIpQLSf1g1JsQVpnkgcLpZaaA1fdI6S1g58Gzng3lyJWwiIS_MHCEg/viewform?usp=sf_link)