| Standard | Translation |
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| Students know the energy release per gram of material is much larger in nuclear fusion or fission reactions than in chemical reactions. The change in mass (calculated by $E = mc^2$) is small but significant in nuclear reactions | |
| Students know some naturally occurring isotopes of elements are radioactive, as are isotopes formed in nuclear reactions. | |
| Students know the three most common forms of radioactive decay (alpha, beta, and gamma) and know how the nucleus changes in each type of decay. | |
| Students know alpha, beta, and gamma radiation produce different amounts and kinds of damage in matter and have different penetrations. | |