

HS-PS1-8 Matter and Its Interactions

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
<p>1 Asking questions (for science) and defining problems (for engineering)</p> <p>2 Developing and using models Modeling in 9–12 builds on K–8 and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds.</p> <ul style="list-style-type: none"> Develop a model based on evidence to illustrate the relationships between systems or between components of a system. <p>3 Planning and carrying out investigations</p> <p>4 Analyzing and interpreting data</p> <p>5 Using mathematics and computational thinking</p> <p>6 Constructing explanations (for science) and designing solutions (for engineering)</p> <p>7 Engaging in argument from evidence</p> <p>8 Obtaining, evaluating, and communicating information</p>	<p>Nuclear Processes:</p> <ul style="list-style-type: none"> Nuclear processes, including fusion, fission, and radioactive decays of unstable nuclei, involve release or absorption of energy. The total number of neutrons plus protons does not change in any nuclear process. 	<p>HS-PS1-8 <i>Students who demonstrate understanding can:</i></p> <p>Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.</p> <p>Clarification Statement: Emphasis is on simple qualitative models, such as pictures or diagrams, and on the scale of energy released in nuclear processes relative to other kinds of transformations.</p> <p>Assessment Boundary: Assessment does not include quantitative calculation of energy released. Assessment is limited to alpha, beta, and gamma radioactive decays.</p>

Crosscutting Concepts: Energy and Matter

- In nuclear processes, atoms are not conserved, but the total number of protons plus neutrons is conserved.

Oklahoma Academic Standards Connections

ELA/Literacy

Mathematics

Connection to PASS Coming Soon