Disciplinary Core Ideas
Physical Sciences

PS1—MATTER AND ITS INTERACTIONS

How can one explain the structure, properties, and interactions of matter?

PS1.A: STRUCTURES AND PROPERTIES OF MATTER: *How do particles combine to form the variety of matter one observes?*
PS1.B: CHEMICAL REACTIONS: *How do substances combine or change (react) to make new substances? How does one characterize and explain these reactions and make predictions about them?*
PS1.C: NUCLEAR PROCESSES: *What forces hold nuclei together and mediate nuclear processes?*

PS2—MOTION AND STABILITY: FORCES AND INTERACTIONS

How can one explain and predict interactions between objects and within systems of objects?

PS2.A: FORCES AND MOTION *How can one predict an object's continued motion, changes in motion, or stability?*
PS2.B: TYPES OF INTERACTIONS: *What underlying forces explain the variety of interactions observed?*
PS2.C: STABILITY AND INSTABILITY IN PHYSICAL SYSTEMS: *Why are some physical systems more stable than others?*

PS3—ENERGY

How is energy transferred and conserved?

PS3.A: DEFINITIONS OF ENERGY: *What is energy?*
PS3.B: CONSERVATION OF ENERGY AND ENERGY TRANSFER: *What is meant by conservation of energy? How is energy transferred between objects or systems?*
PS3.C: RELATIONSHIP BETWEEN ENERGY AND FORCES: *How are forces related to energy?*
PS3.D: ENERGY IN CHEMICAL PROCESSES AND EVERYDAY LIFE: *How do food and fuel provide energy? If energy is conserved, why do people say it is produced or used?*

PS4—WAVES AND THEIR APPLICATIONS IN TECHNOLOGIES FOR INFORMATION TRANSFER

How are waves used to transfer energy and information?

PS4.A: WAVE PROPERTIES: *What are the characteristic properties and behaviors of waves?*
PS4.B: ELECTROMAGNETIC RADIATION: *What is light? How can one explain the varied effects that involve light? What other forms of electromagnetic radiation are there?*
PS4.C: INFORMATION TECHNOLOGIES AND INSTRUMENTATION: *How are instruments that transmit and detect waves used to extend human senses?*