| Standard ID | Standard Text | Edgenuity Lesson Name |
|---|---|---|
| WA.HS-PS. | PHYSICAL SCIENCE | |
| HS-PS1. | Matter and Its Interactions | |
| | Students who demonstrate understanding can: | |
| HS-PS1-1. | Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. | Radioactivity<br>Atomic Spectra |
| HS-PS1-3. | Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles. | Electrostatics<br>Electric Fields |
| HS-PS2. | Motion and Stability: Forces and Interactions | |
| | Students who demonstrate understanding can: | |
| HS-PS2-1. | Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration. | Speed and Velocity<br>Acceleration<br>Lab: Motion with Constant Acceleration<br>Newton's First and Third Laws<br>Newton's Second Law<br>Lab: Newton's Second Law |
| HS-PS2-2. | Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system. | Impulse and Momentum<br>Conservation of Momentum<br>Lab: Conservation of Linear Momentum |
| HS-PS2-3. | Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision. | Impulse and Momentum<br>Conservation of Momentum<br>Lab: Conservation of Linear Momentum<br>Projectile Motion |
| HS-PS2-4. | Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects. | Universal Law of Gravitation<br>Centripetal Acceleration<br>Circular Motion<br>Orbital Motion<br>Coulomb's Law |

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| HS-PS2-5. | Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current. | Electromagnetic Waves<br>Electric Fields<br>Magnetic Field and Force<br>Electromagnetic Induction<br>Lab: Electromagnetic Induction |
| HS-PS2-6. | Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. | States of Matter<br>Changes of State<br>Nanotechnology |
| HS-PS3. | Energy | |
| | Students who demonstrate understanding can: | |
| HS-PS3-1. | Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known. | Potential Energy<br>Energy Transformations<br>Conservation of Energy<br>Temperature and Heat<br>Heat Transfer |
| HS-PS3-2. | Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as either motions of particles or energy stored in fields. | Kinetic Energy<br>Energy Transformations<br>Conservation of Energy<br>Temperature and Heat<br>Heat Transfer<br>States of Matter<br>Changes of State<br>Electrostatics<br>Electric Fields<br>Ohm's Law<br>Electric Circuits<br>Lab: Circuit Design<br>Magnets and Magnetism<br>Magnetic Field and Force |

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| HS-PS3-3. | Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. | Work and Power<br>Kinetic Energy<br>Energy Transformations<br>Temperature and Heat<br>Heat Transfer<br>Lab: Mechanical Equivalent of Heat |
| HS-PS3-4. | Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics). | Energy Transformations<br>Conservation of Energy<br>Temperature and Heat<br>Heat Transfer<br>Lab: Mechanical Equivalent of Heat<br>First Law of Thermodynamics<br>Second Law of Thermodynamics |
| HS-PS3-5. | Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction. | Electric Fields<br>Magnetic Field and Force<br>Electromagnetic Induction<br>Lab: Electromagnetic Induction |
| HS-PS4. | Waves and Their Applications in Technologies for Information Transfer | |
| | Students who demonstrate understanding can: | |
| HS-PS4-1. | Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media. | Introduction to Waves<br>Wave Properties<br>Wave Interactions<br>Sound Waves<br>Electromagnetic Waves |
| HS-PS4-2. | Evaluate questions about the advantages of using a digital transmission and storage of information. | Sound Waves<br>Radio Waves and Applications |
| HS-PS4-3. | Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other. | Dual Nature of Light |

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| HS-PS4-4. | Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter. | Electromagnetic Waves |
| HS-PS4-5. | Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy. | Radio Waves and Applications |
| WA.HS-ESS. | EARTH AND SPACE SCIENCE | |
| HS-ESS1. | Earth's Place in the Universe | |
| | Students who demonstrate understanding can: | |
| HS-ESS1-1. | Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation. | The Sun<br>Stars |
| HS-ESS1-2. | Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe. | Origin and Evolution of the Universe<br>Atomic Spectra |
| HS-ESS1-3. | Communicate scientific ideas about the way stars, over their life cycle, produce elements. | Stars |
| HS-ESS1-4. | Use mathematical or computational representations to predict the motion of orbiting objects in the solar system. | Universal Law of Gravitation<br>Orbital Motion<br>Earth-Moon-Sun System |
| HS-ESS1-5. | Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks. | Plate Tectonics<br>Radioactivity |
| HS-ESS2. | Earth's Systems | |
| | Students who demonstrate understanding can: | |
| HS-ESS2-1. | Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features. | Plate Tectonics<br>Forces in Earth's Crust<br>Lab: Plate Boundaries and Movement |

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| HS-ESS2-2. | Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth's systems. | Forces in Earth's Crust<br>Lab: Plate Boundaries and Movement |
| HS-ESS2-3. | Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection. | Earth's Interior<br>Plate Tectonics<br>Lab: Plate Boundaries and Movement |
| HS-ESS2-4. | Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate. | Factors That Affect Climate |
| WA.HS-ETS. | ENGINEERING DESIGN | |
| HS-ETS1. | Engineering Design | |
| | Students who demonstrate understanding can: | |
| HS-ETS1-1. | Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. | Nanotechnology |
| HS-ETS1-2. | Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. | Lab: Circuit Design |
| HS-ETS1-3. | Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. | Nanotechnology |
| HS-ETS1-4. | Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem. | |
| WA.RST.11-12. | Reading Standards for Literacy in Science and Technical Subjects | |
| | Key Ideas and Details | |
| RST.11-12.1. | Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account. | Earth-Moon-Sun System |

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|---|---|---|
| RST.11-12.2. | Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. | Earth-Moon-Sun System |
| RST.11-12.3. | Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. | Lab: Motion with Constant Acceleration |
| | Craft and Structure | |
| RST.11-12.4. | Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics. | Speed and Velocity<br>Acceleration |
| RST.11-12.5. | Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. | Earth-Moon-Sun System |
| RST.11-12.6. | Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved. | Magnets and Magnetism |
| | Integration of Knowledge and Ideas | |
| RST.11-12.7. | Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. | Electric Circuits<br>Lab: Circuit Design |
| RST.11-12.8. | Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information. | Earth-Moon-Sun System |
| RST.11-12.9. | Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. | Orbital Motion |
| | Range of Reading and Level of Text Complexity | |
| RST.11-12.10. | By the end of grade 12, read and comprehend science/technical texts in the grades 11-12 text complexity band independently and proficiently. | Earth-Moon-Sun System |

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|---|---|---|
| WA.WHST.11-12. | Writing Standards for Literacy in Science and Technical Subjects | |
| | Text Types and Purposes | |
| WHST.11-12.1. | Write arguments focused on discipline-specific content. | |
| WHST.11-12.1(a) | Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence. | Newton's Second Law |
| WHST.11-12.1(b) | Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases. | Newton's Second Law |
| WHST.11-12.1(c) | Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. | Newton's Second Law |
| WHST.11-12.1(d) | Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. | Newton's Second Law |
| WHST.11-12.1(e) | Provide a concluding statement or section that follows from or supports the argument presented. | Newton's Second Law |
| WHST.11-12.2. | Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. | |
| WHST.11-12.2(a) | Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. | Lab: Motion with Constant Acceleration |
| WHST.11-12.2(b) | Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. | Lab: Motion with Constant Acceleration |

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| WHST.11-12.2(c) | Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. | Lab: Motion with Constant Acceleration |
| WHST.11-12.2(d) | Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers. | Lab: Motion with Constant Acceleration |
| WHST.11-12.2(e) | Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic). | Lab: Motion with Constant Acceleration |
| WHST.11-12.3. | (See note; not applicable as a separate requirement) | |
| WHST.11-12.3(a) | Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results. | |
| | Production and Distribution of Writing | |
| WHST.11-12.4. | Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. | Lab: Electromagnetic Induction |
| WHST.11-12.5. | Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. | Impulse and Momentum |
| WHST.11-12.6. | Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information. | Impulse and Momentum |

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|---|---|---|
| | Research to Build and Present Knowledge | |
| WHST.11-12.7. | Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. | Orbital Motion |
| WHST.11-12.8. | Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. | Orbital Motion |
| WHST.11-12.9. | Draw evidence from informational texts to support analysis, reflection, and research. | Orbital Motion |
| | Range of Writing | |
| WHST.11-12.10. | Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. | Orbital Motion |