

Essex Fells Public School

CURRICULUM & INSTRUCTION

Science

Grade: 5

ABSTRACT

Students are expected to demonstrate grade appropriate proficiency in asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding in the disciplines of physical, life and Earth and space sciences. Student performance will be evaluated using a variety of assessments, including teacher-generated tests and quizzes, laboratory activities, homework, research projects, class participation and small group exploration activities.

BOE Approved: 8/12/26

ESSEX FELLS PUBLIC SCHOOLS

Grade 5 Science

Unit of Study: (<i>Pacing Guide - Specify time frame by days or weeks</i>)	Ecosystems: Interactions, Energy, and Dynamics September-November <i>(12 weeks)</i>	Earth's Systems December - February <i>(12 weeks)</i>	Earth's Place in the Universe/Space February - April <i>(12 weeks)</i>
STAGE 1: Desired Results			
Established Goals: Write out complete NJSLS: (<i>Content Specific Standards Only. Only use standards that are applicable to the unit.</i>)	5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water. 5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. 5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. 5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. 5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. 5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down. 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

			3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
Interdisciplinary Connections: Write out complete NJSLs: <i>(Must have at least one standard from one of these areas but may have more):</i> • <i>ELA companion standards;</i> • <i>Standards for Mathematical Practice</i> • <i>Science;</i> • <i>Visual/Performing Arts) - Standard 1;</i> • <i>Comprehensive Health & PE - Standard 2;</i> • <i>Social Studies - Standard 6;</i> • <i>World Languages - Standard 7;</i>	ELA RI.CR.5.1 Quote accurately from informational texts to explain ideas and draw inferences. W.AW.5.1 Write opinion pieces supporting a point of view with reasons and evidence. Social Studies 6.3.5.CivicsPD.1 Develop solutions to community issues using evidence and civic responsibility.	ELA W.RW.5.7 Conduct research projects. SL.PI.5.4 Present claims supported by evidence. SL.PE.5.1 Participate effectively in collaborative discussions. Social Studies 6.1.5.GeoHE.1 Use geographic information to explain relationships between people and the environment. Health/PE 2.3.5.HCDM.1 Explain how healthy environments contribute to community well-being.	ELA RI.CR.5.1 Quote accurately from informational texts. W.AW.5.1 Support claims with evidence. W.AW.5.1 Write arguments supported with evidence. SL.PE.5.1 Engage in collaborative discussions. Social Studies 6.1.5.HistoryCC.1 Use evidence to explain how scientific discoveries change understanding of the world. Visual & Performing Arts 1.5.5.Cr1a Develop ideas inspired by scientific observations.
Integration of Career Readiness, Life Literacies & Key Skills: Write out complete NJSLs: <i>(Must have at least one standard from:</i> • <i>9.1 Personal Financial Literacy; or</i> • <i>9.2 Career Awareness, Exploration, Preparation & Training; or</i> • <i>9.4 Life Literacies &</i>	9.4.5.CI.1 Use appropriate communication techniques to collaborate with others. 9.4.5.CT.1 Identify problems that can be solved through computational thinking.	9.4.5.CT.1 Identify problems that can be solved through computational thinking. 9.4.5.IML.8 Create digital presentations using graphs and scientific data. 9.4.5.CI.1 Collaborate effectively to solve authentic problems.	9.4.5.CT.1 Use critical thinking to solve problems. 9.4.5.IML.8 Create digital representations of data. 9.4.5.CT.2 Test, evaluate, and improve solutions.

<i>Key Skills)</i>			
Integration of Computer Science and Design Thinking: Write out complete NJSLS: <i>(Must have at least one standard from:</i> • 8.1 Computer Science; or • 8.2 Design Thinking)	Design Thinking 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. 8.2.5.ED.5: Describe how specifications and limitations impact the engineering design process. 8.2.5.ED.6: Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.	Design Thinking 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. 8.2.5.ED.5: Describe how specifications and limitations impact the engineering design process. 8.2.5.ED.6: Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.	Design Thinking 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. 8.2.5.ED.5: Describe how specifications and limitations impact the engineering design process. 8.2.5.ED.6: Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.
21st Century Life and Careers: Career Education: Write out complete NJSLS: <i>(Only include if a CTE curriculum</i> • 9.3 Career and Technical Education)	N/A	N/A	N/A
Enduring Understandings: <i>(Follow UbD: What big ideas will students know?)</i>	• Living things depend on interactions with their environment to survive. • Matter and energy move through Earth's systems in predictable ways. • Scientific models and evidence help explain natural phenomena. • Human actions can positively or negatively affect Earth's resources and ecosystems. • Individuals and communities share responsibility for protecting the environment.	• Earth's systems are interconnected. • Earth's resources are limited and should be conserved. • Data and models help explain natural systems. • Engineering uses problem-solving to meet human needs. • Design improves through testing and revision.	• The universe follows predictable patterns that can be observed and explained. • Gravity affects the motion of objects on Earth. • Scientists use evidence, observations, and data to explain natural phenomena. • Engineers solve problems through planning, testing, evaluating, and improving designs. • Careful investigation and revision lead to stronger scientific and engineering solutions.

Essential Questions: <i>(Follow UbD best practices in the creation of questions)</i>	1. How do living things obtain the materials and energy they need to survive? 2. How are matter and energy connected in ecosystems? 3. How do scientists use models and evidence to explain the natural world? 4. In what ways do humans impact Earth's environment? 5. How can communities use science to create a more sustainable future?	1. How do Earth's systems interact? 2. Why should we conserve Earth's resources? 3. How do models and data help us understand science? 4. How do engineers solve problems? 5. How can designs be improved?	1. How do patterns help us understand Earth and space? 2. How does gravity influence our everyday lives? 3. How do scientists use evidence to explain the natural world? 4. How do engineers design effective solutions? 5. Why are testing and revision essential to the engineering design process?
STAGE 2: Evidence			
Assessment & Evidence: <i>(By what criteria will performances of understanding be judged? Include:</i> 1. Formative, 2. Summative, 3. Alternative - Performance/Project) 4. Benchmark)	Formative Assessments ● Exit tickets ● Science journal entries ● Classroom discussions and questioning ● Think-Pair-Share activities ● Teacher observations during investigations and engineering challenges ● Graphic organizers and concept maps ● Interactive notebook reflections ● Quick writes explaining scientific concepts ● Model or diagram checks ● Peer assessments ● Self-assessments Summative Assessments ● Unit test (multiple choice, short	Formative Assessments ● Exit tickets ● Science journal entries ● Classroom discussions and questioning ● Think-Pair-Share activities ● Teacher observations during investigations and engineering challenges ● Graphic organizers and concept maps ● Interactive notebook reflections ● Quick writes explaining scientific concepts ● Model or diagram checks ● Peer assessments ● Self-assessments Summative Assessments ● Unit test (multiple choice, short answer, and constructed response)	Formative Assessments ● Exit tickets ● Science journal entries ● Classroom discussions and questioning ● Think-Pair-Share activities ● Teacher observations during investigations and engineering challenges ● Graphic organizers and concept maps ● Interactive notebook reflections ● Quick writes explaining scientific concepts ● Model or diagram checks ● Peer assessments ● Self-assessments Summative Assessments ● Unit test (multiple choice, short answer, and constructed response)

	answer, and constructed response) ● Performance task demonstrating understanding of Earth's systems ● Engineering design challenge with written explanation ● Research project on environmental conservation ● Scientific model with written justification ● Oral or multimedia presentation explaining scientific evidence ● End-of-unit project Alternative Assessments ● Build and present a 3D model ● Digital slideshow or infographic ● Video explaining an engineering solution ● STEM design portfolio ● Environmental awareness poster or public service announcement (PSA) ● Oral presentation or student conference ● Interactive digital notebook ● Classroom demonstration or simulation ● Choice board project Benchmark Assessments ● District or grade-level common science assessment ● NGSS-style performance assessment ● Quarterly benchmark assessment ● Standards-based assessment aligned to NGSS	● Performance task demonstrating understanding of Earth's systems ● Engineering design challenge with written explanation ● Research project on environmental conservation ● Scientific model with written justification ● Oral or multimedia presentation explaining scientific evidence ● End-of-unit project Alternative Assessments ● Build and present a 3D model ● Digital slideshow or infographic ● Video explaining an engineering solution ● STEM design portfolio ● Environmental awareness poster or public service announcement (PSA) ● Oral presentation or student conference ● Interactive digital notebook ● Classroom demonstration or simulation ● Choice board project Benchmark Assessments ● District or grade-level common science assessment ● NGSS-style performance assessment ● Quarterly benchmark assessment ● Standards-based assessment aligned to NGSS	● Performance task demonstrating understanding of Earth's systems ● Engineering design challenge with written explanation ● Research project on environmental conservation ● Scientific model with written justification ● Oral or multimedia presentation explaining scientific evidence ● End-of-unit project Alternative Assessments ● Build and present a 3D model ● Digital slideshow or infographic ● Video explaining an engineering solution ● STEM design portfolio ● Environmental awareness poster or public service announcement (PSA) ● Oral presentation or student conference ● Interactive digital notebook ● Classroom demonstration or simulation ● Choice board project Benchmark Assessments ● District or grade-level common science assessment ● NGSS-style performance assessment ● Quarterly benchmark assessment ● Standards-based assessment aligned to NGSS
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	• Data analysis task using graphs and scientific evidence • Engineering design performance task with rubric • End-of-unit cumulative assessment • Science portfolio review	• Data analysis task using graphs and scientific evidence • Engineering design performance task with rubric • End-of-unit cumulative assessment • Science portfolio review	• Data analysis task using graphs and scientific evidence • Engineering design performance task with rubric • End-of-unit cumulative assessment • Science portfolio review
STAGE 3: Learning Plan			
Learning Activities/Content: <i>(What is the core content of this unit? What performance tasks/ activities will students do? What skills will students know? Include content that adheres to NJ Administrative Code and Statutes:</i> • Amistad Law • Holocaust Law • LGBTQ/Disabilities Law)	DEI • Diversity and Inclusion Law (N.J.S.A. 18A:35-4.36a) • 6.1.5.CivicsHR.4: Identify actions that are unfair or discriminatory, such as bullying, and propose solutions to address such actions. Amistad • 6.1.5.CivicsDP.2: Compare and contrast responses of individuals and groups, past and present, to violations of fundamental rights (e.g., fairness, civil rights, human rights). Diversity and Inclusion • 2.1.5.EH.3: Identify different feelings and emotions that people may experience and how they might express these emotions (e.g., anger, fear, happiness, sadness, hopelessness, anxiety). • 2.1.5.SSH.3: Demonstrate ways to promote dignity and respect for all people (e.g. sexual orientation, gender identity and expression,	DEI • Diversity and Inclusion Law (N.J.S.A. 18A:35-4.36a) • 6.1.5.CivicsHR.4: Identify actions that are unfair or discriminatory, such as bullying, and propose solutions to address such actions. Amistad • 6.1.5.CivicsDP.2: Compare and contrast responses of individuals and groups, past and present, to violations of fundamental rights (e.g., fairness, civil rights, human rights). Diversity and Inclusion • 2.1.5.EH.3: Identify different feelings and emotions that people may experience and how they might express these emotions (e.g., anger, fear, happiness, sadness, hopelessness, anxiety). • 2.1.5.SSH.3: Demonstrate ways to promote dignity and respect for all people (e.g. sexual orientation,	DEI • Diversity and Inclusion Law (N.J.S.A. 18A:35-4.36a) • 6.1.5.CivicsHR.4: Identify actions that are unfair or discriminatory, such as bullying, and propose solutions to address such actions. Amistad • 6.1.5.CivicsDP.2: Compare and contrast responses of individuals and groups, past and present, to violations of fundamental rights (e.g., fairness, civil rights, human rights). Diversity and Inclusion • 2.1.5.EH.3: Identify different feelings and emotions that people may experience and how they might express these emotions (e.g., anger, fear, happiness, sadness, hopelessness, anxiety). • 2.1.5.SSH.3: Demonstrate ways to promote dignity and respect for all people (e.g. sexual orientation,

	race, ethnicity, socio-economic status, differing ability, immigration status, family configuration). Holocaust Law ● 6.2.2.D.2 Recognize real people and fictional characters who have demonstrated responsible leadership and citizenship and identify the characteristics that have made them good examples. ● Illustrate how sound/light transfer from one place to another. ● Explain how sound energy travels and what it can travel through. ● Recognize how humans use patterns to communicate information and use technology to communicate those patterns across long distances. ● Investigate particles and how collisions between those particles affect the way sound travels. ● Develop a supported claim utilizing information gathered through investigations. ● Highlight scientists, ecologists, farmers, and environmental leaders from diverse cultures and backgrounds. ● Include examples of Indigenous ecological knowledge and sustainable practices alongside modern	gender identity and expression, race, ethnicity, socio-economic status, differing ability, immigration status, family configuration). Holocaust Law ● 6.2.2.D.2 Recognize real people and fictional characters who have demonstrated responsible leadership and citizenship and identify the characteristics that have made them good examples. ● Analyze data to determine the relationship of humans and the earth's natural resources. ● Compare and explain amounts and percentages of water in various parts of the earth ● Create a model illustrating distribution of Earth's water. ● Environmental Concerns Project/presentation ● Develop a supported claim utilizing information gathered through investigations. ● Investigate how water droplets form ● Observe how water shortages affect different parts of the world ● Incorporate examples of environmental stewardship from	gender identity and expression, race, ethnicity, socio-economic status, differing ability, immigration status, family configuration). Holocaust Law ● 6.2.2.D.2 Recognize real people and fictional characters who have demonstrated responsible leadership and citizenship and identify the characteristics that have made them good examples. ● Construct a size-distance scale model of the solar system (distance scale limited to distance from the sun to Earth). ● Locate Earth's distance from the sun. ● Utilize a light and moon model to determine the phases of the moon and create a phases of the moon chart to summarize their results. ● Shadow Shifting: Students will trace shadows in the morning and afternoon, and compare tracings. They will use this information to determine the position of the Sun as it appears to move throughout the day. ● Sun Tracking: Students will construct Sun trackers.
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	scientific approaches. ● Use cooperative learning groups with assigned roles to encourage equitable participation. ● Provide multiple ways for students to demonstrate learning, including models, drawings, oral presentations, digital media, and written responses. ● Connect science concepts to students' own cultural experiences, family traditions, and local environments. ● Use Universal Design for Learning (UDL) strategies and accessible materials so all students can fully participate in investigations and discussions.	cultures around the world, including Indigenous knowledge and local community practices. ● Highlight scientists, engineers, and environmental leaders from diverse backgrounds. ● Use heterogeneous cooperative learning groups with clearly defined roles to ensure every student participates. ● Provide multiple ways for students to demonstrate understanding (models, drawings, oral presentations, digital media, or written responses). ● Connect learning to students' own communities by exploring local environmental issues and encouraging civic responsibility. ● Use Universal Design for Learning (UDL) strategies and accessible materials so all learners can actively engage in investigations and engineering challenges.	● Develop a kinesthetic model to investigate what causes the daily pattern of sun and stars that can be seen from Earth ● Develop a supported claim utilizing information gathered through investigations. ● Highlight contributions of scientists, engineers, and inventors from a variety of cultures, backgrounds, and identities. ● Use culturally responsive examples of astronomy, engineering, and environmental science from around the world. ● Ensure heterogeneous cooperative groups where every student has a meaningful role. ● Provide multiple ways for students to demonstrate understanding (models, drawings, oral presentations, digital media, or written responses). ● Use universally designed learning (UDL) strategies and accessible materials so all students can fully participate. ● Encourage respectful discussion that values different ideas, experiences, and approaches to solving scientific and engineering
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			problems.
Resources: <i>(Include names of texts and all online resources)</i>	Textbook www.Amplify.com Science journal www.NSTA.org www.nextgenscience.org BrainPop Generation Genius Freckle EdPuzzle IXL.com www.MysteryScience.com	Textbook www.Amplify.com Science journal www.NSTA.org www.nextgenscience.org BrainPop Generation Genius Freckle EdPuzzle IXL.com www.MysteryScience.com	Textbook www.Amplify.com Science journal www.NSTA.org www.nextgenscience.org BrainPop Generation Genius Freckle EdPuzzle IXL.com www.MysteryScience.com
Differentiation: <i>(What type of differentiated instruction will be used for each of the following subgroups:</i> 1. <i>Special Education</i> 2. <i>English Language Learners (ELLs)</i> 3. <i>At Risk/BSI</i> 4. <i>Gifted & Talented/Advanced</i> 5. <i>504</i>	Special Education - Extended time for task completion (Assignments, Assessments, etc..) - Provide copy of accurate notes - Breaking down and chunking assignments - Restating and clarifying instruction - Extra book provided to keep at home - Organizational assistance (notebook, assignment pad, lab materials, etc.) - Option to type instead handwriting notes - Adjusting class schedule to alternate instruction (morning/afternoon) - Modify test and quizzes - Provide manipulative examples - Preferential Seating - Use of Graphic Organizers (charts, visual outlines, etc..) - Repetition and clarification of	Special Education - Extended time for task completion (Assignments, Assessments, etc..) - Provide copy of accurate notes - Breaking down and chunking assignments - Restating and clarifying instruction - Extra book provided to keep at home - Organizational assistance (notebook, assignment pad, lab materials, etc.) - Option to type instead handwriting notes - Adjusting class schedule to alternate instruction (morning/afternoon) - Modify test and quizzes - Provide manipulative examples - Preferential Seating - Use of Graphic Organizers	Special Education - Extended time for task completion (Assignments, Assessments, etc..) - Provide copy of accurate notes - Breaking down and chunking assignments - Restating and clarifying instruction - Extra book provided to keep at home - Organizational assistance (notebook, assignment pad, lab materials, etc.) - Option to type instead handwriting notes - Adjusting class schedule to alternate instruction (morning/afternoon) - Modify test and quizzes - Provide manipulative examples - Preferential Seating - Use of Graphic Organizers

	directions Assessments and class work read aloud ● Provide checklists ● Movement breaks ● Visual representation of print version ● Use of an alarm/timer to aide with time management, including transitional warning ● Nonverbal cue for off-task behavior ● Provide positive reinforcement ● Hands on learning activities ● Ask student to restate directions or concepts taught ● Deliver directions one step at a time, gradually increasing the number of steps delivered ● Explain the purpose of the assignment to the student ● Provide managed choices to increase on task behavior ● Allow for break passes when needed English Language Learners (ELLs) ● Provide alternate ways for the student to respond (verbal/pictographic answers instead of written) ● Substitute a hands-on activity or use of different media in projects for a written activity ● Provide word banks / word walls ● Prepare and distribute advance notes ● Provide model sentence frames and sentence starters for both oral responses and written responses	(charts, visual outlines, etc..) ● Repetition and clarification of directions Assessments and class work read aloud ● Provide checklists ● Movement breaks ● Visual representation of print version ● Use of an alarm/timer to aide with time management, including transitional warning ● Nonverbal cue for off-task behavior ● Provide positive reinforcement ● Hands on learning activities ● Ask student to restate directions or concepts taught ● Deliver directions one step at a time, gradually increasing the number of steps delivered ● Explain the purpose of the assignment to the student ● Provide managed choices to increase on task behavior ● Allow for break passes when needed English Language Learners (ELLs) ● Provide alternate ways for the student to respond (verbal/pictographic answers instead of written) ● Substitute a hands-on activity or use of different media in projects for a written activity ● Provide word banks / word walls ● Prepare and distribute advance notes	(charts, visual outlines, etc..) ● Repetition and clarification of directions Assessments and class work read aloud ● Provide checklists ● Movement breaks ● Visual representation of print version ● Use of an alarm/timer to aide with time management, including transitional warning ● Nonverbal cue for off-task behavior ● Provide positive reinforcement ● Hands on learning activities ● Ask student to restate directions or concepts taught ● Deliver directions one step at a time, gradually increasing the number of steps delivered ● Explain the purpose of the assignment to the student ● Provide managed choices to increase on task behavior ● Allow for break passes when needed English Language Learners (ELLs) ● Provide alternate ways for the student to respond (verbal/pictographic answers instead of written) ● Substitute a hands-on activity or use of different media in projects for a written activity ● Provide word banks / word walls ● Prepare and distribute advance notes
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	● Provide additional time to complete assessments and assignments ● Model and use gestures to aid in understanding ● Model tasks by giving one or two examples before releasing students to work independently ● Present instructions both verbally and visually ● Simplify written and verbal instructions Students At-Risk (BSI) ● Extended time for task completion (Assignments, Assessments, etc..) ● Provide copy of accurate notes ● Breaking down and chunking assignments ● Restating and clarifying instruction ● Extra book provided to keep at home ● Organizational assistance (notebook, assignment pad, lab materials, etc.) Gifted and Talented (Advanced) Students: ● Encourage independent studies or investigations ● Encourage creative expression by allowing students to choose how to explore a problem ● Invite students to explore points of view ● Varied levels of reading text ● Enriched hands on center that students can explore independently ● Higher order thinking tasks and	● Provide model sentence frames and sentence starters for both oral responses and written responses ● Provide additional time to complete assessments and assignments ● Model and use gestures to aid in understanding ● Model tasks by giving one or two examples before releasing students to work independently ● Present instructions both verbally and visually ● Simplify written and verbal instructions Students At-Risk (BSI) ● Extended time for task completion (Assignments, Assessments, etc..) ● Provide copy of accurate notes ● Breaking down and chunking assignments ● Restating and clarifying instruction ● Extra book provided to keep at home ● Organizational assistance (notebook, assignment pad, lab materials, etc.) Gifted and Talented (Advanced) Students: ● Encourage independent studies or investigations ● Encourage creative expression by allowing students to choose how to explore a problem	● Provide model sentence frames and sentence starters for both oral responses and written responses ● Provide additional time to complete assessments and assignments ● Model and use gestures to aid in understanding ● Model tasks by giving one or two examples before releasing students to work independently ● Present instructions both verbally and visually ● Simplify written and verbal instructions Students At-Risk (BSI) ● Extended time for task completion (Assignments, Assessments, etc..) ● Provide copy of accurate notes ● Breaking down and chunking assignments ● Restating and clarifying instruction ● Extra book provided to keep at home ● Organizational assistance (notebook, assignment pad, lab materials, etc.) Gifted and Talented (Advanced) Students: ● Encourage independent studies or investigations ● Encourage creative expression by allowing students to choose how to explore a problem
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	- questions • Provide leadership opportunities in lab groups • Allow opportunities to analyze and evaluate materials 504 Plans • Restating and clarifying instruction • Extra book provided to keep at home • Organizational assistance (notebook, assignment pad, lab materials, etc.) • Option to type instead handwriting notes • Adjusting class schedule to alternate instruction (morning/afternoon) • Modify test and quizzes • Provide manipulative examples • Preferential Seating	• Invite students to explore points of view • Varied levels of reading text • Enriched hands on center that students can explore independently • Higher order thinking tasks and questions • Provide leadership opportunities in lab groups 504 Plans • Restating and clarifying instruction • Extra book provided to keep at home • Organizational assistance (notebook, assignment pad, lab materials, etc.) • Option to type instead handwriting notes • Adjusting class schedule to alternate instruction (morning/afternoon) • Modify test and quizzes • Provide manipulative examples • Preferential Seating	• Invite students to explore points of view • Varied levels of reading text • Enriched hands on center that students can explore independently • Higher order thinking tasks and questions • Provide leadership opportunities in lab groups 504 Plans • Restating and clarifying instruction • Extra book provided to keep at home • Organizational assistance (notebook, assignment pad, lab materials, etc.) • Option to type instead handwriting notes • Adjusting class schedule to alternate instruction (morning/afternoon) • Modify test and quizzes • Provide manipulative examples • Preferential Seating
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Unit of Study: <i>(Pacing Guide - Specify time frame by days or weeks)</i>	Topic: Matter & Its Interactions May - June <i>(8 weeks)</i>
STAGE 1: Desired Results	

Established Goals: Write out complete NJSLs: <i>(Content Specific Standards Only. Only use standards that are applicable to the unit.)</i>	5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. 5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. 5-PS1-3. Make observations and measurements to identify materials based on their properties. 5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances. 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
Interdisciplinary Connections: Write out complete NJSLs: <i>(Must have at least one standard from one of these areas but may have more):</i> • <i>ELA companion standards;</i> • <i>Standards for Mathematical; Practice</i> • <i>Science;</i> • <i>Visual/Performing Arts) - Standard 1;</i> • <i>Comprehensive Health & PE - Standard 2;</i> • <i>Social Studies - Standard 6;</i>	ELA RI.CR.5.1 Quote accurately from informational texts when explaining scientific ideas. SL.PI.5.4 Present information using appropriate facts and evidence. Mathematics 5.MD.B.2 Collect, display, and interpret data. Social Studies 6.1.5.HistoryCC.1 Explain how scientific discoveries have expanded human understanding. PE

• <i>World Languages - Standard 7;</i>	2.2.5.PF.4 Use measurement and observation to monitor progress.
Integration of Career Readiness, Life Literacies & Key Skills: Write out complete NJSLs: <i>(Must have at least one standard from:</i> • <i>9.1 Personal Financial Literacy; or</i> • <i>9.2 Career Awareness, Exploration, Preparation & Training; or</i> • <i>9.4 Life Literacies & Key Skills)</i>	Life Literacies & Key Skills 9.4.5.CT.1 Apply critical thinking to solve problems. 9.4.5.IML.8 Create digital graphs and presentations. 9.4.5.CT.4 Evaluate outcomes and improve solutions.
Integration of Computer Science and Design Thinking: Write out complete NJSLs: <i>(Must have at least one standard from:</i> • <i>8.1 Computer Science; or</i> • <i>8.2 Design Thinking)</i>	Design Thinking 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. 8.2.5.ED.5: Describe how specifications and limitations impact the engineering design process. 8.2.5.ED.6: Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.
21st Century Life and Careers: Career Education: Write out complete NJSLs: (Only include if a CTE	N/A

<i>curriculum</i> • 9.3 Career and Technical Education)	
Enduring Understandings: <i>(Follow UbD: What big ideas will students know?)</i>	• Matter is made of particles that cannot be seen with the naked eye. • Matter can change physically or chemically while following predictable scientific principles. • The properties of materials help scientists identify, classify, and use them. • Scientific investigations provide evidence to explain changes in matter. • Engineers use a design process to solve problems by planning, testing, evaluating, and improving solutions.
Essential Questions: <i>(Follow UbD best practices in the creation of questions)</i>	1. What is matter, and how does it change? 2. How can the properties of materials be observed and measured? 3. How do scientists investigate changes in matter? 4. How do engineers develop effective solutions to problems? 5. Why are testing and comparing solutions important in engineering?
STAGE 2: Evidence	
Assessment & Evidence: <i>(By what criteria will performances of understanding be judged? Include:</i> 1. Formative, 2. Summative, 3. Alternative -	Formative Assessments • Exit tickets • Science journal entries • Classroom discussions and questioning

Performance/Project)
4. Benchmark)

- Think-Pair-Share activities
- Teacher observations during investigations and engineering challenges
- Graphic organizers and concept maps
- Interactive notebook reflections
- Quick writes explaining scientific concepts
- Model or diagram checks
- Peer assessments
- Self-assessments

Summative Assessments

- Unit test (multiple choice, short answer, and constructed response)
- Performance task demonstrating understanding of Earth's systems
- Engineering design challenge with written explanation
- Research project on environmental conservation
- Scientific model with written justification
- Oral or multimedia presentation explaining scientific evidence
- End-of-unit project

Alternative Assessments

- Build and present a 3D model
- Digital slideshow or infographic
- Video explaining an engineering solution
- STEM design portfolio
- Environmental awareness poster or public service announcement (PSA)
- Oral presentation or student

	conference • Interactive digital notebook • Classroom demonstration or simulation • Choice board project Benchmark Assessments • District or grade-level common science assessment • NGSS-style performance assessment • Quarterly benchmark assessment • Standards-based assessment aligned to NGSS • Data analysis task using graphs and scientific evidence • Engineering design performance task with rubric • End-of-unit cumulative assessment • Science portfolio review
STAGE 3: Learning Plan	
Learning Activities/Content: <i>(What is the core content of this unit? What performance tasks/activities will students do? What skills will students know? Include content that adheres to NJ Administrative Code and Statutes:</i> • <i>Amistad Law</i> • <i>Holocaust Law</i> • <i>LGBTQ/Disabilities Law)</i>	DEI Diversity and Inclusion Law (N.J.S.A. 18A:35-4.36a) 6.1.5.CivicsHR.4: Identify actions that are unfair or discriminatory, such as bullying, and propose solutions to address such actions. Amistad 6.1.5.CivicsDP.2: Compare and contrast responses of individuals and groups, past and present, to violations of fundamental rights (e.g., fairness, civil rights, human rights). Diversity and Inclusion

2.1.5.EH.3: Identify different feelings and emotions that people may experience and how they might express these emotions (e.g., anger, fear, happiness, sadness, hopelessness, anxiety).

2.1.5.SSH.3: Demonstrate ways to promote dignity and respect for all people (e.g. sexual orientation, gender identity and expression, race, ethnicity, socio-economic status, differing ability, immigration status, family configuration).

Holocaust Law

6.2.2.D.2 Recognize real people and fictional characters who have demonstrated responsible leadership and citizenship and identify the characteristics that have made them good examples.

Activities

- Utilize filtering and evaporation to separate the products of the chemical reactions
- Investigate how different molecules make certain liquids separate
- Conservation of Mass: Students will use a balance and mass pieces to show that matter is conserved when making a salt water solution.
- Categorize different images of matter. The goal is to get students to identify solid, liquid, and gas.
- Conduct experiments to tell if mixing two or more substances will result in a new substance.
- Identify the difference between

	physical and chemical changes. • Develop a supported claim utilizing information gathered through investigations. • Highlight scientists, chemists, inventors, and engineers from diverse cultures, backgrounds, and identities. • Incorporate examples of how science and engineering are used in homes and communities around the world. • Use heterogeneous cooperative learning groups with rotating roles to ensure equitable participation. • Provide multiple ways for students to demonstrate understanding, including models, drawings, oral presentations, digital media, experiments, and written responses. • Connect science learning to students' own experiences, cultures, and community practices. • Apply Universal Design for Learning (UDL) by offering accessible materials, visual supports, hands-on investigations, and flexible options for participation and assessment.
Resources: <i>(Include names of texts and all online resources)</i>	Textbook www.Amplify.com Science journal www.NSTA.org www.nextgenscience.org

	BrainPop Generation Genius Freckle EdPuzzle IXL.com www.MysteryScience.com
Differentiation: <i>(What type of differentiated instruction will be used for each of the following subgroups:</i> 1. Special Education 2. English Language Learners (ELLs) 3. At Risk/BSI 4. Gifted & Talented/Advanced 5. 504	Special Education • Extended time for task completion (Assignments, Assessments, etc..) • Provide copy of accurate notes • Breaking down and chunking assignments • Restating and clarifying instruction • Extra book provided to keep at home • Organizational assistance (notebook, assignment pad, lab materials, etc.) • Option to type instead handwriting notes • Adjusting class schedule to alternate instruction (morning/afternoon) • Modify test and quizzes • Provide manipulative examples • Preferential Seating • Use of Graphic Organizers (charts, visual outlines, etc..) • Repetition and clarification of directions Assessments and class work read aloud • Provide checklists • Movement breaks • Visual representation of print version • Use of an alarm/timer to aide with time management, including transitional warning • Nonverbal cue for off-task behavior • Provide positive reinforcement • Hands on learning activities

	● Ask student to restate directions or concepts taught ● Deliver directions one step at a time, gradually increasing the number of steps delivered ● Explain the purpose of the assignment to the student ● Provide managed choices to increase on task behavior ● Allow for break passes when needed English Language Learners (ELLs) ● Provide alternate ways for the student to respond (verbal/pictographic answers instead of written) ● Substitute a hands-on activity or use of different media in projects for a written activity ● Provide word banks / word walls ● Prepare and distribute advance notes ● Provide model sentence frames and sentence starters for both oral responses and written responses ● Provide additional time to complete assessments and assignments ● Model and use gestures to aid in understanding ● Model tasks by giving one or two examples before releasing students to work independently ● Present instructions both verbally and visually ● Simplify written and verbal instructions Students At-Risk (BSI) ● Extended time for task completion (Assignments, Assessments, etc..)
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- Provide copy of accurate notes
- Breaking down and chunking assignments
- Restating and clarifying instruction
- Extra book provided to keep at home
- Organizational assistance (notebook, assignment pad, lab materials, etc.)

Gifted and Talented (Advanced) Students:

- Encourage independent studies or investigations
- Encourage creative expression by allowing students to choose how to explore a problem
- Invite students to explore points of view
- Varied levels of reading text
- Enriched hands on center that students can explore independently
- Higher order thinking tasks and questions
- Provide leadership opportunities in lab groups
- Allow opportunities to analyze and evaluate materials

504 Plans

- Restating and clarifying instruction
- Extra book provided to keep at home
- Organizational assistance (notebook, assignment pad, lab materials, etc.)
- Option to type instead handwriting notes
- Adjusting class schedule to alternate instruction (morning/afternoon)
- Modify test and quizzes
- Provide manipulative examples
- Preferential Seating

