Grade 3

Unit 2: Forces and Motion

New Jersey Student Learning Standards

Established: 2016-2017
Revised: 2018-2019
Revised: 2019-2020
Revised: 2020-2021
Revised: 2022-2023
Revised: 2023-2024
Revised: 2024-2025

NJSLS Climate Change Companion Guide

Trimester	Unit Title	Recommended Instructional Days
1	Unit 2: Forces and Motion	30

NJSLS - Science: *Title*	NJSLS - Science: *Performance Expectations*	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit
Motion and Stability: Forces and Interactions	**3-PS2-1** **3-PS2-2** **3-PS2-3** **3-PS2-4** **3-5-ETS1-1** **3-5-ETS1-2** **3-5-ETS1-3**	
FOUNDATION Disciplinary: *Core Idea*	**FOUNDATION Disciplinary: *Statement***	
• **PS2.A** - Forces and Motion • **PS2.B** - Types of Interactions • **ETS1.A** - Defining and Delimiting Engineering Problems • **ETS1. B** - Developing Possible Solutions • **ETS1.C** - Optimizing the Design Solution	Understand that objects in contact exert forces on each other and those forces have both strength and a direction. Electric and magnetic forces do not require contact.	**Essential Question/s:** • What is the relationship between objects and the forces that act on them? • How can we predict the locations of moving objects? • What forces act from a distance? **Activity Description**: **Getting Started - Approximately 5 Days**: 1. Safety in the Lab 2. Safety in the Field 3. Safety Symbols 4. Safety Quiz - Students should have the option to retake until passed 5. Introduce the Engineering Design Process
FOUNDATION Science and Engineering Practices: *Core Idea*	**FOUNDATION Science and Engineering Practices: *Statement***	

• Asking Questions and Defining Problems • Planning and Carrying Out Investigations • Engaging in Argument from Evidence • Designing Solutions	Ask questions based on cause-and-effect relationships to plan and conduct an investigation to produce data that serves as a basis to answer a question and support an argument.	**Anchoring Phenomenon:** Various forces act on an object. **Engage** - Can You Explain It? - FUNomenal Reader **Explore/Explain** - Investigate phenomena through hands-on activities & explorations **Suggested Activities** - "Move the Car" - Explore how the strength of the force affects distance and speed - "Ramp Moves" - Explore balanced and unbalanced forces - "Which Way?" - Use district-approved resources to explore how multiple forces act on an object simultaneously. - "What are Contact Forces?" - Use district-approved resources to investigate how touching objects exert force on each other. - "Gravity Can Bring You Down" - Use district-approved resources to investigate how gravity pulls objects down. **Elaborate** - Take it Further - Use district-approved online resources to research and elaborate on the anchoring phenomenon (Simple Machines, Careers in Science & Engineering: Safety Engineer, People in Science & Engineering: Christine Bland)
FOUNDATION **Crosscutting Concepts:** ***Core Idea***	**FOUNDATION** **Crosscutting Concepts:** ***Statement***	
• Cause and Effect • Patterns • Interdependence of Science, Engineering, and Technology	Define cause and effect relationships and understand that scientific discoveries about the natural world often lead to new and improved technologies developed through the design process.	
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	
• Self-Awareness • Self-Management • Social Awareness • Responsible Decision-Making • Relationship Skills	• Recognize the importance of self-confidence in handling daily tasks and challenges • Recognize the skills needed to establish and achieve personal and educational goals • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Develop, implement, and model effective	

	problem-solving and critical thinking skills ● Utilize positive communication and social skills to interact effectively with others	**Anchoring Phenomenon:** The location of moving objects can be predicted based on patterns of motion. **Engage** - Can You Explain It? - FUNomenal Reader **Explore/Explain** - Investigate phenomena through hands-on activities & explorations **Suggested Activities** - "Move It" - Explore patterns of motion - "Tick Tock" - Investigate how an object's motion is sometimes repeated. - "Patterns in Speed and Direction" - Use district-approved resources to explore the many patterns of objects in motion. **Elaborate** - Take it Further - Use district-approved online resources to research and elaborate on the anchoring phenomenon (Careers in Science and Engineering: Biomechanist, Where Does Earth Go Every Year, Well-Oiled Machines) **Anchoring Phenomenon:** Magnets and electricity exert a force on some objects from a distance. **Engage** - Can You Explain It? - FUNomenal Reader

		Explore/Explain - "Solve a Magnet Problem" - Explore how magnets exert a force on some objects - "Build an Electromagnet" - Explore how electricity can produce a magnetic force. - "Magnets Everywhere" - Use district-approved resources to investigate how a magnetic force acts from a distance - "It's Electric!" - Use district-approved resources to investigate how electricity exerts a force from a distance. **Elaborate** - Take It Further - Use district-approved online resources to research and elaborate on the anchoring phenomenon (Careers in Science and Engineering: Electrician, Maglev Train, People in Science and Engineering: Christine Darden and the Wright Brothers). **Amistad Law/Diversity & Inclusion** Conduct a research study on Christine Darden who was the first African American woman at NASA's Langley Research Center to be promoted to the Senior Executive Service, the top rank in the federal civil service. **Interdisciplinary Connections - Mathematics:** **3DL.A** - Understand data-based questions and data collection **3DL.B** - Represent and interpret data

		Interdisciplinary Connections - English Language Arts: **RI.CR.3.1 -** Ask and answer questions to demonstrate understanding of a text **RI.IT.3.3-** Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. **RI.MF.3.6** - Use information gained from text features and the words in a text to demonstrate understanding of the text **RI.AA.3.7-** Describe the logical connection between particular sentences and paragraphs in a text. **W.WR.3.5-** Generate questions about a topic and independently locate related information from at least two reference sources (print and non-print) to obtain information on that topic. **W.SE.3.6 -** Use discussion, books, or media resources to gather ideas, outline them, and prioritize the information to include while planning to write about a topic. **SL.PI.3.4.** Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: ● Making Sense of Phenomena ● Lesson Check ● Lesson Quiz ● Evidence notebooks	**Benchmarks:** ● District Assessment 1 **Summative Assessments:** ● Unit Assessment **Alternative Assessment:** ● Performance-Based Assessment ● Unit Project ● Unit Performance Task **Suggested Writing Prompt:** 1. Read the ReadWorks article "Famous Scientist Sir Isaac Newton." In your evidence notebook, write about his discovery of gravity and how it affects your everyday life. What would happen if there was no gravity on Earth?

Differentiated Student Access to Content: **Teaching and Learning *Resources/Materials***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ML Core Resources**	**Gifted & Talented Core Resources**
● Evidence Notebook ● Equipment Kit ● FUNomenal Readers ● Idea Organizer	In addition to Core Resources: ● FUNomenal Readers ● Multilingual Glossary	In addition to Core Resources: ● FUNomenal Readers ● Multilingual Glossary	In addition to Core Resources: ● FUNomenal Readers

• Language Development Worksheet • Online Simulations • Into Science TE • Into Science SE • District Approved Resources		• Multilingual Home Letters	

Supplemental Resources

Technology:

- Chromebook
- SMARTBoard/Promethean Board
- District-Approved Resources

Ed Science Platform:

- Digital Assessments
- Digital Performance Tasks
- You Solve It Simulations
- Student eBook
- Video-Based Projects
- Science Tools
- Online Glossary

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ML Core Resources**	**Gifted & Talented Core**
• Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic	• Utilize a multi-sensory (VAKT) approach during instruction • Provide alternate	• Extend time requirements • Preferred seating • Positive reinforcement • Check often for	• Create an enhanced set of introductory activities • Integrate active teaching/learning

● Provide individual instruction as needed	presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.) ● Modify test content and/or format ● Allow students to retake tests for additional credit, Provide additional times and preferential seating as needed, ● Review, restate, and repeat directions ● Provide study guides, and/or break assignments into segments of shorter tasks	understanding/review ● Oral/visual directions/prompts when necessary ● Supplemental materials including the use of online bilingual dictionaries, and modified assessments and/or rubrics.	opportunities ● Incorporate authentic components ● Propose interest-based extension activities ● Connect students to related talent development opportunities

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept:** 1. Career Awareness & Planning 2. Creativity and Innovation 3. Critical Thinking & Problem-Solving 4. Global & Cultural Awareness 5. Information and Media Literacy 6. Technology Literacy	
	Core Ideas:	● An individual's passions, aptitude, and skills can affect his/her employment and earning potential. ● Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions ● Curiosity and a willingness to try new ideas (intellectual risk-taking) contribute to the development of creativity and innovation skills. ● The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.

		• Individuals from different cultures may have different points of view and experiences. • Culture and geography can shape an individual's experiences and perspectives. • Specific situations require the use of relevant sources of information. • Different digital tools have different purposes. • Collaborating digitally as a team can often develop a better artifact than an individual working alone.
	Performance Expectation/s:	• 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes. • 9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations. • 9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., lifeguards, child care, medicine, education) and examples of these requirements • 9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change • 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a). • 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3). • 9.4.5.GCA.1: Analyze how culture shapes individual and community perspectives and points of view (e.g., 1.1.5.C2a, RL.5.9, 6.1.5.HistoryCC.8). • 9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions (e.g., RI.5.7, 6.1.5.HistoryCC.7, 7.1.NM. IPRET.5). • 9.4.5.TL.3: Format a document using a word processing application to enhance text, change page formatting, and include appropriate images, graphics, or symbols.

		• 9.4.5.TL.5: Collaborate digitally to produce an artifact (e.g., 1.2.5CR1d).
	Career Readiness, Life Literacies, & Key Skills Practices	
	• Act as a responsible and contributing community member and employee. • Consider the environmental, social and economic impacts of decisions. • Demonstrate creativity and innovation. • Utilize critical thinking to make sense of problems and persevere in solving them. • Model integrity, ethical leadership and effective management. • Plan education and career paths aligned to personal goals. • Use technology to enhance productivity, increase collaboration and communicate effectively. • Work productively in teams while using cultural/global competence.	

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
X	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*	X	Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*	X	Standards in Action: *Climate Change*