Grade K

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

Marking Period	Unit Title	Recommended Instructional Days
Trimester 1	Forces and Motion	28-30 Days

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	**K-PS2-1:** Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. **K-PS2-2**: Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.	
FOUNDATION Disciplinary: *Core Idea*	**FOUNDATION Disciplinary: *Statement***	
• PS2.A: Forces and Motion • PS2.B: Types of Interactions	• Pushes and pulls can have different strengths and directions. (K-PS2- 1), (K-PS2-2); Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (KPS2-1), (K-PS2-2) • When objects touch or collide, they push on one another and can change motion. (K-PS2-1)	**Essential Question/s:** • What is motion? • How can we change the way things move? **Activity Description**: • Motion is the act of moving. When something is moving, it is in motion. • Speed is how fast or slow something is moving. • Direction is the path a moving object takes. • A force is a push or pull that can make an object at rest move or an object in motion stop. Forces can also change the speed and direction of objects. **Activities:** • "A Game of Motion" • Engineer It - "Make A Ramp" (MA)

● PS3.C: Relationship Between Energy and Forces ● ETS1.A: Defining Engineering Problems	● A bigger push or pull makes things speed up or slow down more quickly. (secondary to K-PS2-1) ● A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (*secondary to K-PS2-2)*	● Engineer It - "Pushing and Pulling Objects" (MA) ● Leveled Readers - (ELA) **Interdisciplinary Connections: Content *NJSLS*** **Connections to Math:** **MP.2.** Reason abstractly and quantitatively **K.MD.A.1** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. **K.MD.A.2** Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. **Connections to ELA** **W.K.7** Participate in shared research and writing projects (e.g., explore a number of books by a favorite author, and express opinions about them." **SL.K.3** Ask questions in order to clarify something that is not understood
FOUNDATION **Science and Engineering Practices:** ***Core Idea***	**FOUNDATION** **Science and Engineering Practices:** ***Statement***	
● Planning and Carrying Out Investigations	● Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. ○ With guidance, plan and conduct an investigation in collaboration with peers. (K-PS2-1)	

• Analyzing and Interpreting Data	• Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations ○ Analyze data from tests of an object or tool to determine if it works as intended. (K-PS2-2)	
FOUNDATION Crosscutting Concepts: ***Core Idea***	**FOUNDATION Crosscutting Concepts:** ***Statement***	
• Cause and Effect • Scientific Investigations Use a Variety of Methods	• Simple tests can be designed to gather evidence to support or refute student ideas about causes (K-PS2-1), (K-PS2-2) *Connections to Nature of Science* • Scientists use different ways to study the world. (K-PS2-1)	
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	
• Responsible Decision-Making • Relationship Skills • Self-Management	• Develop, implement, and model effective problem-solving and critical thinking skills	

• Social Awareness • Self Awareness	• Utilize positive communication and social skills to interact effectively with others • Recognize the skills needed to establish and and achieve personal and educational goals • Demonstrate an understanding of the need for mutual respect when viewpoints differ. • Demonstrate an awareness of the expectations for social interactions in a variety of ways. • Recognize the importance of self-confidence in handling daily tasks and challenges.	

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:***
<u>Formative Assessments:</u> • Interactive Worktext, Apply What You Know (scoring rubrics attached), Lesson Check, and Self-Check	**<u>Benchmarks:</u>** • Unit Test • Stem Challenges: “Design a Roller Coaster • Unit Project, Unit Performance Task **<u>Summative Assessments:</u>** • Lesson Quiz, Interactive Worktext

Differentiated Student Access to Content: **Teaching and Learning *Resources/Materials***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**

• Workbook • Leveled Readers • Hands-on Activities • Interactive Worktext	• Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake • Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat instructions as needed.	• Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric.	• Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect students to related talent development opportunities.

Supplemental Resources

Technology:
- HMH Co. Interactive Site
- You Solve It!

Other: Career Education: Engineer, Physicists
Spotlight on Scientist: Sir Issac Newton

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

Core Resources	Alternate Core Resources *IEP/504/At-Risk/ESL*	ELL Core Resources	Gifted & Talented Core
• Large group instruction • Small group instruction • Think Pair Share • Cooperative group work • Multimedia presentations • K-W-L • Manipulatives • Leveled Readers	• Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake • Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat instructions as needed.	• Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric.	• Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect students to related talent development opportunities.

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept: Creativity & Innovation/Critical Thinking & Problem Solving / Technology Literacy**	
	Core Ideas:	• Brainstorming can create new, innovative ideas. • Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem. • Collaboration can simplify the work an individual has to do and sometimes produce a better product.

	Performance Expectation/s:	• 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). • 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). • 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). • 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). • 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). • 9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2).
	Career Readiness, Life Literacies & Key Skill Practices	
	• Demonstrate creativity and innovation. • Utilize critical thinking to make sense of problems and persevere in solving them. • 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)									
	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*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*