

BUTLER SCHOOL DISTRICT

Grade 3 Science Curriculum

Authored by:
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Adapted from:
New Jersey Student Learning Standards 2020

Reviewed by:
Dr. Daniel R. Johnson, Superintendent
Margaret Lynch, Supervisor of STEAM

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VISION

The Butler School District's Science Department's objective is to prepare students to think critically, innovate, communicate, and collaborate in an ever-changing world. The Science curriculum provides students with quality, rigorous instruction to help them become better **problem solvers, troubleshooters, and analytical thinkers**. The rich, educational experience provided within the Butler School District will produce young adults with the foundation and expertise they need for the future. It is the goal to challenge each student to develop and extend scientific proficiency through highest quality science teaching and standard-based assessments that meet the learning needs of each student. Butler Science students will become individuals who persevere in their pursuit of lifelong learning through a culture that appreciates the beauty and usefulness of science.

As a result of a Butler Science education, students will be able to...

- Synthesize scientific skills across disciplines
- Develop into confident scientists
- Learn at their own pace and advance their understanding in a variety of ways
- Collaborate with others and contribute productively and articulately
- Act responsibly and be accountable for actions, in person and online
- Effectively approach, analyze, plan, and apply appropriate strategies for problem solving in ambitious contexts with accommodations for those who need it.
- Persevere through difficult situations and tasks and maintain a growth mindset despite adversity.
- Draw on knowledge from a wide variety of science topics with flexibility to approach the same problem from different perspectives or represent the science in different ways.
- Evaluate situations, draw logical conclusions, and develop, describe and apply solutions.
- Construct and support arguments.
- Evaluate their own reasoning and critique the reasoning of others.
- Assess the reasonableness of a solution with respect to the given construct or problem context.
- Use effective communication to engage in peer collaboration, reflecting on whether or not a solution is viable.
- Create appropriate representations of scientific situations across a variety of mediums. These models will support the student's ability to demonstrate and explain their scientific understanding.
- Use tools to explore and deepen their understanding of science concepts.
- Make effective choices regarding the use of any available tools.
- Make appropriate use of technology as a tool that is constantly changing and evolving.
- "Attend to precision" in their mathematical calculations and in their communication.
- Calculate accurately and efficiently and express numerical answers with a degree of precision that is appropriate to the given context.
- Develop precision in their use of scientific language.
- Look closely to determine patterns and structures within science.
- Make meaningful connections between their knowledge from previous experiences and the content they are currently exploring.
- Develop deep understandings of scientific concepts such that these understandings become applicable building blocks for future learning.

- Identify patterns in science that can be used to solve problems that are challenging relative to their learning comfort zone.
- Use generalizations to increase the efficiency and manageability of their work.
- Demonstrate growth mindset and grit in effectively approaching ever-rigorous problem solving.
- Apply appropriate strategies with differentiated levels of support.
- Be confident in participating in higher level discussions that will assess and advance the understanding of concepts.
- Learn science through exploring and solving contextual problems

COURSE OVERVIEW

The Butler School District's Grade 3 curriculum includes a variety of topics within physical, earth, and life science categories.. Those topics include weather and climate, motion, forces, electricity and magnetism, life cycles, traits, adaptations, survival, and fossil evidence.

COMPONENTS OF THE COURSE

GOALS

New Jersey Student Learning Standards
New Jersey Department of Education Instructional Units for Science

ASSESSMENT

Student learning will be assessed through a variety of formative, summative, benchmark, and alternative assessments.

SCOPE AND SEQUENCE (Pacing Guide)

Unit of Study	Estimated time
Unit 1: Physical	12 weeks
Unit 2: Earth	12 weeks
Unit 3 : Life	12 weeks

AFFIRMATIVE ACTION COMPLIANCE STATEMENT

The Butler Public Schools are committed to the achievement of increased cultural awareness, respect, and equity amongst our students, teachers, and community. We are pleased to present all pupils with information pertaining to possible career, professional, or vocational opportunities which in no way restricts or limits options on the basis of race, color, creed, religion, sex, ancestry, national origin, or socioeconomic status.

INTEGRATED ACCOMMODATIONS AND MODIFICATIONS

Students with IEPs, 504s, and/or Students at Risk of Failure Students read authentic texts and write authentic pieces at their independent and instructional reading levels. Individualized feedback is provided through conferences and small groups. The teacher utilizes visual and multi-sensory methods of instruction in addition to assistive technology when needed. Students are provided with graphic organizers and other scaffolded material. Modification of content and product may be deemed necessary based on student needs. Students are provided with testing accommodations and authentic assessments.

Gifted & Talented Students Students read authentic texts and write authentic pieces at their independent and instructional reading levels. Individualized feedback is provided to the student through conferences and small groups. Students are engaged through inquiry-based instruction to develop higher-order thinking skills. Activities are developed based on student interests and student goals. Students engage in real-world projects and scenarios.

English Language Learners Students read authentic texts and write authentic pieces at their independent and instructional reading levels. Individualized feedback is provided to students through conferences and small groups. Students are pre-taught vocabulary terms and concepts. Teachers engage students through visual learning, including the use of graphic organizers. Teachers use cognates to increase comprehension. The teacher models tasks and concepts, and pairs students learning English with students who have more advanced English language skills. Scaffolding is provided including word walls, sentence frames, think-pair-share, cooperative learning groups, and teacher think-alouds.

21ST CENTURY THEMES & SKILLS

Embedded in many of our units of study and problem based learning projects are the 21st Century Themes as prescribed by the New Jersey Department of Education. These themes are as follows:

- Global Awareness
- Financial, Economic, Business, and Entrepreneurial Literacy
- Civic Literacy
- Health Literacy

CURRICULUM ADDENDA FOR SPECIAL EDUCATION

This curriculum can be both grade and age appropriate for special education students and serves as a guide for the special education teacher in line with the district's written philosophy of special education, as stated within Policy #6700 concerning Programs for Educationally Disabled Students. Based on the Child Study Team evaluation and consultation with the parent and classroom teacher, an individualized education plan may

include modifications to content, instructional procedures, student expectations, and targeted achievement outcomes of this curriculum document in accordance with the identified needs of an eligible student. This educational plan will then become a supplement guide that the classroom teacher, parent, and Child Study Team will use to measure the individual student's performance and achievement.

CURRICULUM ADDENDA FOR ENGLISH LANGUAGE LEARNERS

This curriculum guide is appropriate and is implemented for all students according to age and grade, and is in line with the district's written philosophy of English language acquisition concerning Bilingual Instruction and English as a Second Language Programs. In accordance with the New Jersey Administrative Code 6A:15, the contents herein provide equitable instructional opportunities for English Language Learners to meet the New Jersey Student Learning Standards and to participate in all academic and non-academic courses. Students enrolled in a Bilingual and/or an ESL program may, in consultation with the classroom teacher and Bilingual and/or ESL teacher, receive modification to content, instructional procedures, student expectations and targeted achievement outcomes of this curriculum document in accordance with the students developmental and linguistic needs.

DIVERSITY AND INCLUSION

In alignment with the 2020 NJSLS, the Science Curriculum materials will:

Cultivate respect towards minority groups to foster appreciation of their differences as well as their contributions to the advancement of science

Analyze and appreciate the diverse contributions made in the past (scientifically, economically, politically, and socially) at both the state and federal level as exemplified through science

Examine grade-level texts and resources that simultaneously highlight science as well as the contributions made to it by those of different genders, ethnicities, and abilities.

Employ science as a means of communication — whether in regard to empathy, inclusivity, or advocacy — in an effort to creatively inspire solutions for those with specific needs.

Engage in authentic learning experiences that motivate the acquisition and application of varied perspectives in science

Facilitate the ability to communicate effectively through science while applying content knowledge, interdisciplinary connections, and thinking skills to do so.

Foster active student participation in an inclusive culture that honors scientists of all genders, ethnicities, and abilities.

Analyze and develop an understanding of how scientific, economic, political, social, and cultural aspects of society influence new technological and scientific processes.

Reflect on both personal and non-personal experiences aimed to promote empathy and inclusivity for all regardless of our differences.

UNIT 1 Earth Science - Weather and Climate

UNIT SUMMARY

In this physical science unit, students will investigate and make predictions about the weather through careful observation of the clouds and wind. Students also learn to differentiate between weather and climate and use models to reveal global climate patterns.

NEW JERSEY STUDENT LEARNING STANDARDS SCIENCE

3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.

3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.

INTERDISCIPLINARY CONNECTIONS

NJSLS English Language Arts

RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

RI.3.9 Compare and contrast the most important points and key details presented in two texts on the same topic.

W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

NJSLS Mathematics

MP.2 Reason abstractly and quantitatively.

MP.2 Reason abstractly and quantitatively

MP.4 Model with mathematics.

MP.5 Use appropriate tools strategically.

3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in bar graphs.

NJSJS Career Readiness, Life Literacies and Key Skills

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

9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions

9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue

9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process

9.4.5.CT.2: Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem

9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.

9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance

9.4.5.IML.2: Create a visual representation to organize information about a problem or issue

9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data.

9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions

NJSLS Computer Science and Design Thinking

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.

8.1.5.DA.5: Propose cause and effect relationships, predict outcomes, or communicate ideas using data.

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.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

8.2.5.EC.1: Analyze how technology has contributed to or reduced inequities in local and global communities and determine its short- and long-term effects.

21st CENTURY LIFE AND CAREER STANDARDS

Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success.

- Act as a responsible and contributing citizen and employee.
- Attend to financial wellbeing
- Consider the environmental, social and economic impacts of decisions
- Demonstrate creativity and innovation.
- Utilize critical thinking to make sense of problems and persevere in problem solving them
- Model integrity, ethical leadership and effective management
- Plan education and career paths aligned to personal goals

<ul style="list-style-type: none"> • Use technology to enhance productivity, increase collaboration and communicate effectively • Work productively in teams while using cultural/global competence 		
9.1: Personal Financial Literacy A. Financial Institutions B. Financial Psychology C. Planning and Budgeting D. Risk Management and Insurance E. Civic Financial Responsibility F. Credit Profile G. Economic and Government Influences H. Credit and Debt Management	9.2: Career Awareness, Exploration & Preparation, and Training A. Career Awareness (K-2) B. Career Awareness and Planning (3-5) C. Career Awareness and Planning (6-8) D. Career Awareness and Planning (9-12) 9.4 Life Literacies and Key Skills A. Creativity and Innovation B. Critical Thinking and Problem-solving C. Digital Citizenship D. Global and Cultural Awareness E. Information and Media Literacy F. Technology Literacy	9.3: Career and Technical Education Agriculture Architecture Arts, A/V, Technology Business Management Education Finance Government Health Science Hospital & Tourism Human Services Information Tech. Law and Public Safety Manufacturing Marketing Science, Technology, Engineering & Math Trans./Logistics
TECHNOLOGY STANDARDS		
8.1: Computer Science A. Computing systems B. Networks and the Internet C. Impacts of Computing D. Data & Analysis E. Algorithms & Programming	8.2 Design Thinking A. Engineering Design B. Interaction of Technology and Humans C. Nature of Technology D. Effects of Technology on the Natural World E. Ethics & Culture	
ENDURING (crosscutting)	UNDERSTANDINGS	ESSENTIAL QUESTIONS
<ul style="list-style-type: none"> • Patterns of change can be used to make predictions • Cause and effect relationships are routinely identified, tested, and used to explain change. • Engineers improve existing technologies or develop new ones to 	<ul style="list-style-type: none"> • How can you show how patterns can be used to make predictions? • Which cause and effect relationships are routinely identified, tested, and used to explain change. • How can engineers improve existing technologies or develop new ones to 	

<p>increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands</p> <ul style="list-style-type: none"> Science affects everyday life 	<p>increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands</p> <ul style="list-style-type: none"> How does science affect everyday life?
STUDENT LEARNING OBJECTIVES (Students are learning to / Students are learning that)	
<ul style="list-style-type: none"> Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. 	
SUGGESTED ACTIVITIES	
<ul style="list-style-type: none"> Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships Obtain and combine information from books and other reliable media to explain phenomena Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. https://kidsagainstclimatechange.co/lessons-for-teachers/ Climate https://www.sciencebuddies.org/blog/aanhip-scientists AAPI (Tetsuya Theodore "Ted" Fujita, meteorologist) https://www.chicagotribune.com/lifestyles/ct-life-women-and-girls-in-stem-if-then-ambassadors-tt-0210-20210210-bwdgh6desnettlejk2ghqumt5e-story.html DEI 	
EVIDENCE OF LEARNING	
Formative Assessments: Classroom Discussion Exit Slip Checklists Peer Assessment Vocabulary Quizzes Rubrics Participation and teacher observation Mini Whiteboard Responses Think-Pair-Share Concept Map Classroom Poll	Summative Assessment: Unit Tests End-of-Book Test NJSLA Test
Benchmark Assessment: Teacher created Assessments Unit Benchmarks Star 360	Alternative Assessments: Project Portfolio

INSTRUCTIONAL RESOURCES

Core Instructional Resource:

Savvas Elevate

Teacher Created Materials:

- Nearpod
- Google Slides
- Exit Tickets

Supplemental Resources:

- Kahoot
- Blookit
- Edulastic
- Brainpop Jr.
- Schoolwide Science

INTEGRATED ACCOMMODATIONS AND MODIFICATIONS

Special Education:

Provide modified notes and access to extra copies online
Provide oral reminders and check student work during independent work time
Model skills/techniques to be mastered
Check and sign assignment planner
Preferential seating
Pair visual prompts with verbal presentations
Modified or scaffolded homework and classwork
Extended time as needed
Provide graphic organizers and study guides

English Learners:

Provide scaffolded assignments and assessments
Pair visual prompts with visual presentations
Check and sign assignment planner
Native Language translation (peer, online assistive technology, translation device, bilingual dictionary)
Extended time for assignment and assessment as needed
Highlight key vocabulary
Use graphic organizers
Provide verbal and written directions
Preferential seating with a English-speaking peer

At Risk of Failure:

Check and sign assignment planner
Encourage class participation and reinforce skills
Model skills and assignments
Extended to time to complete class work
Preferential seating
Provide extra help outside of class and 1:1 instruction when needed
Communicate regularly with students' other teachers
Provide positive feedback for tasks well done
Encourage student to proofread assessments and projects and ask for teacher proofreading of large writing assignments

Gifted and Talented:

Pose higher-level thinking questions

Provide higher level reading and writing materials for literacy based activities
Probe student to extend thinking beyond the text or connect two or more texts
Provide alternate or project-based assessments and assignments

Students with 504 Plans

Provide extended time as needed
Modify length of writing assignment
Provide short breaks within the lesson
Provide scaffolding for students
Utilize graphic organizers

Unit 2 Physical Science - Motion, Forces, Electricity and Magnetism

UNIT SUMMARY

In this physical science unit, students explore the forces all around them. They investigate the effects of balanced and unbalanced forces, the pushes and pulls of bridge structures, and the effects of friction on the motion of objects. Students also explore the power of magnetic forces and investigate firsthand how these forces can be used to help us in our everyday lives. They can determine the effects of balanced and unbalanced forces on the motion of an object and the cause-and-effect relationships of electrical or magnetic interactions to define a simple design problem that can be solved with magnets.

NEW JERSEY STUDENT LEARNING STANDARDS SCIENCE

3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object..
3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion
3-PS2-3 Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
3-PS2-4 Define a simple design problem that can be solved by applying scientific ideas about magnets.

INTERDISCIPLINARY CONNECTIONS

NJSLS English Language Arts

RI.3.1 Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-PS2-1), (3-PS2-3)

RI.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. (3-PS2- 3)

RI.3.8 Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence) to support specific points the author makes in a text. (3-PS2-3) • **W.3.7** Conduct short research projects that build knowledge about a topic.

W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

SL.3.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

NJSLS Mathematics

MP.2 Reason abstractly and quantitatively.

MP.5 Use appropriate tools strategically.

3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

NJSJS Career Readiness, Life Literacies and Key Skills

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21st CENTURY LIFE AND CAREER STANDARDS

Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success.

- Act as a responsible and contributing citizen and employee.
- Attend to financial wellbeing

- Consider the environmental, social and economic impacts of decisions
- Demonstrate creativity and innovation.
- Utilize critical thinking to make sense of problems and persevere in problem 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

9.1: Personal Financial Literacy

- A. Civic Responsibility
- B. Financial Institutions
- C. Financial Psychology
- D. Planning and Budgeting
- E. Risk Management and Insurance
- F. Civic Financial Responsibility
- G. Credit Profile
- H. Economic and Government Influences
- I. Credit and Debt Management

9.2: Career Awareness, Exploration & Preparation, and Training

- A. Career Awareness (K-2)
- B. Career Awareness and Planning (3-5)
- C. Career Awareness and Planning (6-8)
- D. Career Awareness and Planning (9-12)

9.4 Life Literacies and Key Skills

- A. Creativity and Innovation
- B. Critical Thinking and Problem-solving
- C. Digital Citizenship
- D. Global and Cultural Awareness
- E. Information and Media Literacy
- F. Technology Literacy

9.3: Career and Technical Education

- A. Agriculture
- B. Architecture
- C. Arts,A/V, Technology
- D. Business Management
- E. Education
- F. Finance
- G. Government
- H. Health Science
- I. Hospital & Tourism
- J. Human Services
- K. Information Tech.
- L. Law and Public Safety
- M. Manufacturing
- N. Marketing
- O. Science, Technology, Engineering & Math
- P. Trans./Logistics

TECHNOLOGY STANDARDS

8.1: Computer Science

- A. Computing systems
- B. Networks and the Internet
- C. Impacts of Computing
- D. Data & Analysis
- E. Algorithms & Programming

8.2 Design Thinking

- A. Engineering Design
- B. Interaction of Technology and Humans
- C. Nature of Technology
- D. Effects of Technology on the Natural World
- E. Ethics & Culture

ENDURING UNDERSTANDINGS

- Patterns of change can be used to make predictions.
- Cause and effect relationships are routinely identified

ESSENTIAL QUESTIONS

- How can patterns of change be used to make predictions?
- How can cause and effect relationships be identified?

<ul style="list-style-type: none"> • Cause and effect relationships are routinely identified, tested, and used to explain change. • Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process. • Science findings are based on recognizing patterns. • Science investigations use a variety of methods, tools, and techniques. 	<ul style="list-style-type: none"> • How can cause and effect relationships that are routinely identified be tested, and used to explain change? • Which scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process? • How are science findings based on recognizing patterns? • Which science investigations use a variety of methods, tools, and techniques?
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STUDENT LEARNING OBJECTIVES (Students are learning to / Students are learning that)

Students are learning to/that...

- Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces, are used at this level.)
- The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.)
- Objects in contact exert forces on each other.
- Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.

SUGGESTED ACTIVITIES

- Ask questions that can be investigated based on patterns such as cause and effect relationships.
- Define a simple problem that can be solved through the development of a new or improved object or tool.
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.
- Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
- <https://www.sciencebuddies.org/blog/aanhip-scientists> - **AAPI** (Ellison Onizuka, astronaut)

EVIDENCE OF LEARNING

Formative Assessments:

Classroom Discussion
Exit Slip
Checklists
Peer Assessment
Vocabulary Quizzes
Rubrics

Summative Assessment:

Unit Tests
End-of-Book Test

NJSLA Test

Participation and teacher observation Mini Whiteboard Responses Think-Pair-Share Concept Map Classroom Poll	
Benchmark Assessment: Star 360 Benchmark Unit Benchmarks	Alternative Assessments: Project Portfolio

INSTRUCTIONAL RESOURCES

Core Instructional Resource: Savvas	Leveled Texts: <ul style="list-style-type: none"> • Nearpod • Google Slides • Exit Tickets 	Supplemental Resources: <ul style="list-style-type: none"> • Kahoot • Blookit • Edulastic • Brainpop Jr. • Schoolwide Science
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INTEGRATED ACCOMMODATIONS AND MODIFICATIONS

Special Education:

Provide modified notes and access to extra copies online
Provide oral reminders and check student work during independent work time
Model skills/techniques to be mastered
Check and sign assignment planner
Preferential seating
Pair visual prompts with verbal presentations
Modified or scaffolded homework and classwork
Extended time as needed
Provide graphic organizers and study guides

English Learners:

Provide scaffolded assignments and assessments
Pair visual prompts with visual presentations
Check and sign assignment planner
Native Language translation (peer, online assistive technology, translation device, bilingual dictionary)
Extended time for assignment and assessment as needed
Highlight key vocabulary
Use graphic organizers
Provide verbal and written directions
Preferential seating with a English-speaking peer

At Risk of Failure:

Check and sign assignment planner
Encourage class participation and reinforce skills
Model skills and assignments
Extended to time to complete class work

Preferential seating
 Provide extra help outside of class and 1:1 instruction when needed
 Communicate regularly with students' other teachers
 Provide positive feedback for tasks well done
 Encourage student to proofread assessments and projects and ask for teacher proofreading of large writing assignments

Gifted and Talented:

Pose higher-level thinking questions
 Provide higher level reading and writing materials for literacy based activities
 Probe student to extend thinking beyond the text or connect two or more texts
 Provide alternate or project-based assessments and assignments

Students with 504 Plans

Provide extended time as needed
 Modify length of writing assignment
 Provide short breaks within the lesson
 Provide scaffolding for students
 Utilize graphic organizers

UNIT 3 Life Science - Life Cycles, Traits, Adaptations, Survival, and Fossil Evidence

UNIT SUMMARY

In this unit, students will develop an understanding of how animals and their environments change through time. Fossils provide a window into the animals and habitats of the past. Analyzing the traits of animals provides evidence for how those traits vary, how they are inherited, and how they have changed over time. Students also examine how the environment can affect inherited traits and determine which animals will survive in a particular environment

NEW JERSEY STUDENT LEARNING STANDARDS SCIENCE

- 3-LS1-1 Develop models to describe that organisms have unique and diverse life cycles, but all have in common birth, growth, reproduction, and death.
- 3-LS2-1 Construct an argument that some animals form groups that help members survive
- 3-LS3-1 Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.
- 3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment
- 3-LS4-1 Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.
- 3-LS4-2 Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.
- 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

- 3-LS4-4 Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

INTERDISCIPLINARY CONNECTIONS

NJSLS English Language Arts

- **W.4.7** Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- **W.4.8** Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information and provide a list of sources.
- W.4.9** Draw evidence from literary or informational texts to support analysis, reflection, and research.

NJSLS Mathematics

- **MP.2** Reason abstractly and quantitatively.
- **MP.4** Model with mathematics
- **4.MD.A.1** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

NJSJS Career Readiness, Life Literacies and Key Skills

- 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
- 9.4.5.CI.1:** Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions
- 9.4.5.CI.2:** Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue
- 9.4.5.CT.1:** Identify and gather relevant data that will aid in the problem-solving process
- 9.4.5.CT.2:** Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem
- 9.4.5.CT.3:** Describe how digital tools and technology may be used to solve problems.
- 9.4.5.IML.1:** Evaluate digital sources for accuracy, perspective, credibility and relevance
- 9.4.5.IML.2:** Create a visual representation to organize information about a problem or issue
- 9.4.5.IML.3:** Represent the same data in multiple visual formats in order to tell a story about the data.
- 9.4.5.IML.6:** Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions

NJSLS Computer Science and Design Thinking

- 8.1.5.DA.1:** Collect, organize, and display data in order to highlight relationships or support a claim.
- 8.1.5.DA.3:** Organize and present collected data visually to communicate insights gained from different views of the data.
- 8.1.5.DA.5:** Propose cause and effect relationships, predict outcomes, or communicate ideas using data.

21st CENTURY LIFE AND CAREER STANDARDS

Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success.

- Act as a responsible and contributing citizen and employee.
- Attend to financial wellbeing
- Consider the environmental, social and economic impacts of decisions
- Demonstrate creativity and innovation.
- Utilize critical thinking to make sense of problems and persevere in problem 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

9.1: Personal Financial Literacy

- I. Financial Institutions
- J. Financial Psychology
- K. Planning and Budgeting
- L. Risk Management and Insurance
- M. Civic Financial Responsibility
- N. Credit Profile
- O. Economic and Government Influences
- P. Credit and Debt Management

9.2: Career Awareness, Exploration & Preparation, and Training

- G. Career Awareness (K-2)
- H. Career Awareness and Planning (3-5)
- I. Career Awareness and Planning (6-8)
- J. Career Awareness and Planning (9-12)

9.4 Life Literacies and Key Skills

- A. Creativity and Innovation
- B. Critical Thinking and Problem-solving
- C. Digital Citizenship
- D. Global and Cultural Awareness
- K. Information and Media Literacy
- L. Technology Literacy

9.3: Career and Technical Education

- Agriculture
- Architecture
- Arts,A/V, Technology
- Business Management
- Education
- Finance
- Government
- Health Science
- Hospital & Tourism
- Human Services
- Information Tech.
- Law and Public Safety
- Manufacturing
- Marketing
- Science, Technology, Engineering & Math
- Trans./Logistics

TECHNOLOGY STANDARDS

8.1: Computer Science A. Computing systems B. Networks and the Internet C. Impacts of Computing D. Data & Analysis E. Algorithms & Programming	8.2 Design Thinking A. Engineering Design B. Interaction of Technology and Humans C. Nature of Technology D. Effects of Technology on the Natural World E. Ethics & Culture
ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
<ul style="list-style-type: none"> • Patterns of change can be used to make predictions. • Science findings are based on recognizing patterns • Cause and effect relationships are routinely identified and used to explain change. • Similarities and differences in patterns can be used to sort and classify natural phenomena. • Cause and effect relationships are routinely identified and used to explain change. • Observable phenomena exist from very short to very long time periods. • A system can be described in terms of its components and their interactions. • Knowledge of relevant scientific concepts and research findings is important in engineering • Science assumes consistent patterns in natural systems. 	<ul style="list-style-type: none"> • How can patterns of change be used to make predictions? • Which science findings are based on recognizing patterns? • Which cause and effect relationships are routinely identified and used to explain change? • How can similarities and differences in patterns be used to sort and classify natural phenomena? • How can cause and effect relationships be routinely identified and used to explain change? • How do observable phenomena exist from very short to very long time periods? • How can a system be described in terms of its components and their interactions? • How can knowledge of relevant scientific concepts and research findings be important in engineering? • How does science assume consistent patterns in natural systems?
STUDENT LEARNING OBJECTIVES (Students are learning to / Students are learning that)	
<i>Students are learning to/that...</i> <ul style="list-style-type: none"> • Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life • Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size • Many characteristics of organisms are inherited from their parents. • Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. • Different organisms vary in how they look and function because they have different inherited information. • The environment also affects the traits that an organism develops. 	

- When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.
- Some kinds of plants and animals that once lived on Earth are no longer found anywhere.

SUGGESTED ACTIVITIES

- Ask questions that can be investigated based on patterns such as cause and effect relationships.
- Define a simple problem that can be solved through the development of a new or improved object or tool.
- Develop models to describe phenomena
- Construct an argument with evidence, data, and/or a model
- Analyze and interpret data to make sense of phenomena using logical reasoning.
- Use evidence (e.g., observations, patterns) to support an explanation.
- Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.
- <http://www.pbs.org/kqed/oceanadventures/educators/arctic/> **Climate**

EVIDENCE OF LEARNING

Formative Assessments:

Classroom Discussion
Exit Slip
Checklists
Peer Assessment
Vocabulary Quizzes
Rubrics
Participation and teacher observation
Mini Whiteboard Responses
Think-Pair-Share
Concept Map
Classroom Poll

Summative Assessment:

Unit Tests
End-of-Book Test

NJSLA Test

Benchmark Assessment:

Teacher created Assessments
Unit Benchmarks
Star 360

Alternative Assessments:

Project
Portfolio

INSTRUCTIONAL RESOURCES

Core Instructional Resource:

Teacher Created Materials:

Supplemental

Savvas	<ul style="list-style-type: none"> • Nearpod • Google Slides • Exit Tickets 	Resources: <ul style="list-style-type: none"> • Kahoot • Blookit • Edulastic • Brainpop Jr. • Schoolwide Science
INTEGRATED ACCOMMODATIONS AND MODIFICATIONS		
<p>Special Education: Provide modified notes and access to extra copies online Provide oral reminders and check student work during independent work time Model skills/techniques to be mastered Check and sign assignment planner Preferential seating Pair visual prompts with verbal presentations Modified or scaffolded homework and classwork Extended time as needed Provide graphic organizers and study guides</p> <p>English Learners: Provide scaffolded assignments and assessments Pair visual prompts with visual presentations Check and sign assignment planner Native Language translation (peer, online assistive technology, translation device, bilingual dictionary) Extended time for assignment and assessment as needed Highlight key vocabulary Use graphic organizers Provide verbal and written directions Preferential seating with a English-speaking peer</p> <p>At Risk of Failure: Check and sign assignment planner Encourage class participation and reinforce skills Model skills and assignments Extended to time to complete class work Preferential seating Provide extra help outside of class and 1:1 instruction when needed Communicate regularly with students' other teachers Provide positive feedback for tasks well done Encourage student to proofread assessments and projects and ask for teacher proofreading of large writing assignments</p> <p>Gifted and Talented: Pose higher-level thinking questions Provide higher level reading and writing materials for literacy based activities Probe student to extend thinking beyond the text or connect two or more texts Provide alternate or project-based assessments and assignments</p>		

Students with 504 Plans

Provide extended time as needed

Modify length of writing assignment

Provide short breaks within the lesson

Provide scaffolding for students

Utilize graphic organizers