

# **BUTLER SCHOOL DISTRICT**

## **Grade 2 Science Curriculum**

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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 2 Science Curriculum covers many topics in the areas of Physical Science, Earth Science, and Life Science. These topics include the following units: Properties of Matter & Changing Matter, Earth's Water and Land & Earth's Processes, and Plants and Animals & Habitats.

### **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 Science	12 Weeks
Unit 2: Earth Science	12 Weeks
Unit 3: Life Science	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.

<b>UNIT 1: Physical Science: Properties of Matter &amp; Changing Matter</b>
<b>UNIT SUMMARY</b>
In this unit, students explore the properties of materials and matter. They describe and classify different types of materials by properties like hardness, flexibility, and absorbency, and they investigate how those properties are useful in meeting basic human needs (such as clothing and cooking). They also investigate how heating and cooling affect the properties of materials.
<b>NEW JERSEY STUDENT LEARNING STANDARDS SCIENCE</b>
<ul style="list-style-type: none"> <li>• 2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</li> <li>• 2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose</li> <li>2-PS1-3 Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.</li> <li>• 2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.</li> </ul>
<b>INTERDISCIPLINARY CONNECTIONS</b>
<p><b>New Jersey Student Learning Standards for English Language Arts:</b></p> <p><b>RI.2.1</b> Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.</p> <p><b>RI.2.3</b> Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.</p> <p><b>RI.2.8</b> Describe how reasons support specific points the author makes in a text.</p> <p><b>W.2.1</b> Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.</p> <p><b>W.2.7</b> Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).</p> <p><b>W.2.8</b> Recall information from experiences or gather information from provided sources to answer a question.</p> <p><b>New Jersey Student Learning Standards for Mathematics:</b></p> <p><b>MP.2</b> Reason abstractly and quantitatively.</p> <p><b>MP.4</b> Model with mathematics.</p> <p><b>MP.5</b> Use appropriate tools strategically.</p> <p><b>2.MD.D.10</b> Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four pries. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph</p> <p><b>New Jersey Students Learning Standards for Career Readiness, Life Literacies and Key Skills:</b></p> <p><b>9.4.2.CI.1:</b> Demonstrate openness to new ideas and perspectives</p> <p><b>9.4.2.CT.1:</b> Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem</p> <p><b>9.4.2.CT.3:</b> Use a variety of types of thinking to solve problems</p> <p><b>9.4.2.DC.2:</b> Explain the importance of respecting digital content of others</p>

**9.4.2.GCA:1:** Articulate the role of culture in everyday life by describing one's own culture and comparing it to the cultures of other individuals

**9.4.2.IML:2:** Represent data in a visual format to tell a story about the data

**9.4.2.TL:7:** Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts

### **New Jersey Student Learning Standards for Computer Science and Design Thinking:**

**8.1.2.NI:1:** Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network.

**8.1.2.AP:4:** Break down a task into a sequence of steps

**8.2.2.ED:2:** Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.

**8.2.2.ITH:3:** Identify how technology impacts or improves life.

**8.2.2.ITH:4:** Identify how various tools reduce work and improve daily tasks

**8.2.2.NT:1:** Model and explain how a product works after taking it apart, identifying the relationship of each part, and putting it back together.

**8.2.2.ETW:1:** Classify products as resulting from nature or produced as a result of technology.

**8.2.2.ETW:2:** Identify the natural resources needed to create a product.

**8.2.2.ETW:3:** Describe or model the system used for recycling technology.

**8.2.2.ETW:4:** Explain how the disposal of or reusing a product affects the local and global environment.

## **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.
- Apply appropriate academic and technical skills.
- Communicate clearly and effectively and with reason.
- Consider the environmental, social and economic impacts of decisions.
- Demonstrate creativity and innovation.
- Employ valid and reliable research strategies.
- Utilize critical thinking to make sense of problems and persevere in solving them.
- Model integrity, ethical leadership and effective management.
- Use technology to enhance productivity.
- 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**

### **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

	<b>Skills</b> 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	N. Marketing O. Science, Technology, Engineering & Math P. Trans./Logistics
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## TECHNOLOGY STANDARDS

<b>8.1: Computer Science</b> A. Computing systems B. Networks and the Internet C. Impacts of Computing D. Data & Analysis E. Algorithms & Programming	<b>8.2 Design Thinking</b> A. Engineering Design B. Interaction of Technology and Humans C. Nature of Technology D. Effects of Technology on the Natural World E. Ethics & Culture
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<b>ENDURING UNDERSTANDINGS</b>	<b>ESSENTIAL QUESTIONS</b>
<ul style="list-style-type: none"> <li>Patterns in the natural and human designed world can be observed.</li> <li>Events have causes that generate observable patterns.</li> <li>Simple tests can be designed to gather evidence to support or refute student ideas about causes</li> <li>Objects may break into smaller pieces and be put together into larger pieces or change shapes</li> <li>Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world</li> <li>Scientists search for cause and effect relationships to explain natural events</li> </ul>	<ul style="list-style-type: none"> <li>How can patterns in the natural and human designed world be designed?</li> <li>Which events have causes that generate observable patterns?</li> <li>How can simple tests be designed to gather evidence which supports or refutes student ideas about causes?</li> <li>How do objects break into smaller pieces and be put into larger pieces or change shapes?</li> <li>How can every human-made product be designed by applying some knowledge of the natural world and be built using materials derived from the natural world?</li> <li>How can scientists search for cause and effect relationships to explain natural events?</li> </ul>

## STUDENT LEARNING OBJECTIVES (Students are learning to / Students are learning that)

<i>Students are learning to/that...</i> <ul style="list-style-type: none"> <li>Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.</li> <li>Different properties are suited to different purposes.</li> <li>A great variety of objects can be built up from a small set of pieces.</li> <li>Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not</li> </ul>
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<b>SUGGESTED ACTIVITIES</b>		
<ul style="list-style-type: none"><li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.</li></ul> Analyze data from tests of an object or tool to determine if it works as intended <ul style="list-style-type: none"><li>Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.</li><li>Construct an argument with evidence to support a claim</li><li><a href="https://www.weareteachers.com/climate-change-activities/">https://www.weareteachers.com/climate-change-activities/</a> <b>CLIMATE</b></li><li><a href="https://www.chicagotribune.com/lifestyles/ct-life-women-and-girls-in-stem-if-then-ambassadors-tt-0210-20210210-bwdgh6desnettlejk2ghqumt5e-story.html">https://www.chicagotribune.com/lifestyles/ct-life-women-and-girls-in-stem-if-then-ambassadors-tt-0210-20210210-bwdgh6desnettlejk2ghqumt5e-story.html</a> <b>DEI</b></li></ul>		
<b>EVIDENCE OF LEARNING</b>		
<b>Formative Assessments:</b> Classroom Discussion Exit Slip Checklists Peer Assessment Vocabulary Quizzes Rubrics Participation and teacher observation Mini Whiteboard Responses Think-Pair-Share Concept Map Classroom Poll	<b>Summative Assessment:</b> Unit Tests End-of-Book Test NJSLA Test	
<b>Benchmark Assessment:</b> Teacher created Assessments Unit Benchmarks	<b>Alternative Assessments:</b> Project Portfolio	
<b>INSTRUCTIONAL RESOURCES</b>		
<b>Core Instructional Resource:</b> <ul style="list-style-type: none"><li>Savvas Elevate Science</li></ul>	<b>Teacher Created Materials</b> <ul style="list-style-type: none"><li>Nearpod</li><li>Google Slides</li><li>Exit Tickets</li></ul>	<b>Supplemental Resources:</b> <ul style="list-style-type: none"><li>Schoolwide Science</li><li>Kahoot</li><li>Blookit</li><li>Edulastic</li><li>Brainpop Jr.</li><li>Schoolwide</li></ul>
<b>INTEGRATED ACCOMMODATIONS AND MODIFICATIONS</b>		
<b>Special Education:</b> 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		

<p>Modified or scaffolded homework and classwork</p> <p>Extended time as needed</p> <p>Provide graphic organizers and study guides</p> <p><b>English Learners:</b></p> <p>Provide scaffolded assignments and assessments</p> <p>Pair visual prompts with visual presentations</p> <p>Check and sign assignment planner</p> <p>Native Language translation (peer, online assistive technology, translation device, bilingual dictionary)</p> <p>Extended time for assignment and assessment as needed</p> <p>Highlight key vocabulary</p> <p>Use graphic organizers</p> <p>Provide verbal and written directions</p> <p>Preferential seating with a English-speaking peer</p> <p><b>At Risk of Failure:</b></p> <p>Check and sign assignment planner</p> <p>Encourage class participation and reinforce skills</p> <p>Model skills and assignments</p> <p>Extended to time to complete class work</p> <p>Preferential seating</p> <p>Provide extra help outside of class and 1:1 instruction when needed</p> <p>Communicate regularly with students' other teachers</p> <p>Provide positive feedback for tasks well done</p> <p>Encourage student to proofread assessments and projects and ask for teacher proofreading of large writing assignments</p> <p><b>Gifted and Talented:</b></p> <p>Pose higher-level thinking questions</p> <p>Provide higher level reading and writing materials for literacy based activities</p> <p>Probe student to extend thinking beyond the text or connect two or more texts</p> <p>Provide alternate or project-based assessments and assignments</p> <p><b>Students with 504 Plans</b></p> <p>Provide extended time as needed</p> <p>Modify length of writing assignment</p> <p>Provide short breaks within the lesson</p> <p>Provide scaffolding for students</p> <p>Utilize graphic organizers</p>
<p><b>UNIT 2: Earth Science: Earth's Water, Land &amp; Earth's Processes</b></p>

<b>UNIT SUMMARY</b>
This unit helps students develop the idea that water is a powerful force that reshapes the earth's surface. Students see that water isn't just something we drink. It carries sand to create beaches, carves out canyons and valleys and, as ice, scrapes entire areas flat.
<b>NEW JERSEY STUDENT LEARNING STANDARDS SCIENCE</b>
<p>2-ESS1-1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly.</p> <p>2-ESS2-1 Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.</p> <p>2-ESS2-2 Develop a model to represent the shapes and kinds of land and bodies of water in an area.</p> <p>2-ESS2-3 Obtain information to identify where water is found on Earth and that it can be solid or liquid.</p> <ul style="list-style-type: none"> <li>• K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>• K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>• K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>
<b>INTERDISCIPLINARY CONNECTIONS</b>
<p><b>New Jersey Student Learning Standards for English Language Arts:</b></p> <p><b>RI.2.1</b> Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.</p> <p><b>RI.2.3</b> Describe the connection between a series of historical events, scientific ideas, or concepts, or steps in technical procedures in a text.</p> <p><b>RI.2.9</b> Compare and contrast the most important points presented by two texts on the same topic.</p> <p><b>W.2.6</b> With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.</p> <p><b>W.2.7</b> Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations)</p> <p><b>W.2.8</b> Recall information from experiences or gather information from provided sources to answer a question.</p> <p><b>SL.2.5</b> Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.</p> <p><b>New Jersey Student Learning Standards for Mathematics:</b></p> <p><b>MP.2</b> Reason abstractly and quantitatively.</p> <p><b>MP.4</b> Model with mathematics.</p> <p><b>MP.5</b> Use appropriate tools strategically.</p> <p><b>2.NBT.A</b> Understand place value.</p> <p><b>2.NBT.A.3</b> Read and write numbers to 1000 using base-ten numerals, number names, and expanded form</p> <p><b>2.MD.B.5</b> Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.</p> <p><b>2.MD.D.10</b> Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using using information presented in a bar graph</p> <p><b>New Jersey Students Learning Standards for Career Readiness, Life Literacies and Key Skills:</b></p> <p><b>9.4.2.CI.1:</b> Demonstrate openness to new ideas and perspectives</p> <p><b>9.4.2.CT.1:</b> Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem</p>

**9.4.2.CT.3:** Use a variety of types of thinking to solve problems  
**9.4.2.DC.2:** Explain the importance of respecting digital content of others  
**9.4.2.GCA:1:** Articulate the role of culture in everyday life by describing one's own culture and comparing it to the cultures of other individuals  
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**21st CENTURY LIFE AND CAREER STANDARDS**

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- Communicate clearly and effectively and with reason.
- Consider the environmental, social and economic impacts of decisions.
- Demonstrate creativity and innovation.
- Employ valid and reliable research strategies.
- Utilize critical thinking to make sense of problems and persevere in solving them.
- Model integrity, ethical leadership and effective management.
- Use technology to enhance productivity.
- 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

**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

**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

H. Economic and Government Influences I. Credit and Debt Management	Planning (9-12)  <b>9.4 Life Literacies and Key Skills</b> 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	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
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## TECHNOLOGY STANDARDS

<b>8.1: Computer Science</b> A. Computing systems B. Networks and the Internet C. Impacts of Computing D. Data & Analysis E. Algorithms & Programming	<b>8.2 Design Thinking</b> A. Engineering Design B. Interaction of Technology and Humans C. Nature of Technology D. Effects of Technology on the Natural World E. Ethics & Culture
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<b>ENDURING UNDERSTANDINGS</b>	<b>ESSENTIAL QUESTIONS</b>
<ul style="list-style-type: none"> <li>Things may change slowly or rapidly.</li> <li>Patterns in the natural world can be observed.</li> <li>Developing and using technology has impacts on the natural world.</li> <li>Scientists study the natural and material world.</li> <li>The shape and stability of structures of natural and designed objects are related to their function(s).</li> </ul>	<ul style="list-style-type: none"> <li>How do things change slowly or rapidly?</li> <li>How can patterns in the natural world be observed?</li> <li>How has developing and using technology had an impact on the natural world?</li> <li>How have scientists studied the natural and material world?</li> <li>How are the shape and stability of structures of natural and designed objects related to their function (s)?</li> </ul>

## STUDENT LEARNING OBJECTIVES (Students are learning to / Students are learning that)

<p><i>Students are learning to/that...</i></p> <ul style="list-style-type: none"> <li>Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe</li> <li>Wind and water can change the shape of the land</li> <li>Maps show where things are located. One can map the shapes and kinds of land and water in any area.</li> <li>Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.</li> <li>Because there is always more than one possible solution to a problem, it is useful to compare and test designs.</li> <li>A situation that people want to change or create can be approached as a problem to be solved through engineering.</li> <li>Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.</li> </ul>
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- Before beginning to design a solution, it is important to clearly understand the problem.
- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.
- Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

## SUGGESTED ACTIVITIES

- Make observations from several sources to construct an evidence based account for natural phenomena
- Develop a model to represent patterns in the natural world.
- Compare multiple solutions to a problem
- Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question.
- Ask questions based on observations to find more information about the natural and/or designed world(s).
- Define a simple problem that can be solved through the development of a new or improved object or tool.
- Develop a simple model based on evidence to represent a proposed object or tool.
- Analyze data from tests of an object or tool to determine if it works as intended.

## 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:

Star 360 Benchmark  
Unit Benchmarks

### Alternative Assessments:

Project  
Portfolio

## INSTRUCTIONAL RESOURCES

### Core Instructional Resource:

- Savvas Elevate Science

### Teacher Created Materials:

- Nearpod
- Google Slides
- Exit Tickets

### Supplemental Resources:

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

## 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: Plants, Animals & Habitats

### UNIT SUMMARY

In this unit, students begin to develop an understanding of the world's animal biodiversity. They explore animal classification and the traits that define each group. Students then turn their focus to habitats and how the surrounding environment affects what organisms live in a particular environment.

### NEW JERSEY STUDENT LEARNING STANDARDS SCIENCE

- 2-LS2-1 Plan and conduct an investigation to determine if plants need sunlight and water to grow.
- 2-LS2-2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants
- 2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats

### INTERDISCIPLINARY CONNECTIONS

#### **New Jersey Student Learning Standards for English Language Arts:**

**RI.2.1** Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

**RI.2.3** Describe the connection between a series of historical events, scientific ideas, or concepts, or steps in technical procedures in a text.

**RI.2.9** Compare and contrast the most important points presented by two texts on the same topic

**W.2.6** With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.

**W.2.7** Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations)

**W.2.8** Recall information from experiences or gather information from provided sources to answer a question.

**SL.2.5** Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.

#### **New Jersey Student Learning Standards for Mathematics:**

**MP.2** Reason abstractly and quantitatively.

**MP.4** Model with mathematics.

**MP.5** Use appropriate tools strategically.

**2.NBT.A** Understand place value.

**2.NBT.A.3** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form

**2.MD.B.5** Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

**2.MD.D.10** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using using information presented in a bar graph

#### **New Jersey Students Learning Standards for Career Readiness, Life Literacies and Key Skills:**

**9.4.2.CI.1:** Demonstrate openness to new ideas and perspectives

**9.4.2.CT.1:** Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem

**9.4.2.CT.3:** Use a variety of types of thinking to solve problems

**9.4.2.DC.2:** Explain the importance of respecting digital content of others

**9.4.2.GCA:1:** Articulate the role of culture in everyday life by describing one’s own culture and comparing it to the cultures of other individuals

**9.4.2.IML.2:** Represent data in a visual format to tell a story about the data

**9.4.2.TL.7:** Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts

### **New Jersey Student Learning Standards for Computer Science and Design Thinking:**

**8.1.2.NI.1:** Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network.

**8.1.2.AP.4:** Break down a task into a sequence of steps

**8.2.2.ED.2:** Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.

**8.2.2.ITH.3:** Identify how technology impacts or improves life. •

**8.2.2.ITH.4:** Identify how various tools reduce work and improve daily tasks

**8.2.2.NT.1:** Model and explain how a product works after taking it apart, identifying the relationship of each part, and putting it back together.

**8.2.2.ETW.1:** Classify products as resulting from nature or produced as a result of technology. •

**8.2.2.ETW.2:** Identify the natural resources needed to create a product. •

**8.2.2.ETW.3:** Describe or model the system used for recycling technology.

**8.2.2.ETW.4:** Explain how the disposal of or reusing a product affects the local and global environment.

## **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.
- Apply appropriate academic and technical skills.
- Communicate clearly and effectively and with reason.
- Consider the environmental, social and economic impacts of decisions.
- Demonstrate creativity and innovation.
- Employ valid and reliable research strategies.
- Utilize critical thinking to make sense of problems and persevere in solving them.
- Model integrity, ethical leadership and effective management.
- Use technology to enhance productivity.
- 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)

### **9.3: Career and Technical Education**

- Q. Agriculture
- R. Architecture
- S. Arts, A/V, Technology
- T. Business Management
- U. Education
- V. Finance
- W. Government
- X. Health Science
- Y. Hospital & Tourism
- Z. Human Services
- AA. Information Tech.
- BB. Law and Public Safety

	<b>9.4 Life Literacies and Key Skills</b> 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	CC. Manufacturing DD. Marketing EE. Science, Technology, Engineering & Math FF. Trans./Logistics
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## TECHNOLOGY STANDARDS

<b>8.1: Computer Science</b> A. Computing systems B. Networks and the Internet C. Impacts of Computing D. Data & Analysis E. Algorithms & Programming	<b>8.2 Design Thinking</b> A. Engineering Design B. Interaction of Technology and Humans C. Nature of Technology D. Effects of Technology on the Natural World E. Ethics & Culture
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<b>ENDURING UNDERSTANDINGS</b>	<b>ESSENTIAL QUESTIONS</b>
<ul style="list-style-type: none"> <li>Events have causes that generate observable patterns.</li> <li>The shape and stability of structures of natural and designed objects are related to their function(s).</li> <li>Scientists look for patterns and order when making observations about the world.</li> </ul>	<ul style="list-style-type: none"> <li>What causes do events have that generate observable patterns</li> <li>How does the shape and stability of structures of natural and designed objects relate to their function(s).</li> <li>How do scientists look for patterns and order when making observations about the world?</li> </ul>

## STUDENT LEARNING OBJECTIVES (Students are learning to / Students are learning that)

<i>Students are learning to/that...</i> <ul style="list-style-type: none"> <li>Plants depend on water and light to grow.</li> <li>Plants depend on animals for pollination or to move their seeds around.</li> <li>Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.</li> <li>There are many different kinds of living things in any area, and they exist in different places on land and in water.</li> </ul>
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## SUGGESTED ACTIVITIES

<ul style="list-style-type: none"> <li>Develop a simple model based on evidence to represent a proposed object or tool.</li> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.</li> <li>Make observations (firsthand or from media) to collect data that can be used to make comparisons.</li> <li><a href="https://climatekids.nasa.gov/10-things-ecosystems/">https://climatekids.nasa.gov/10-things-ecosystems/</a> <b>CLIMATE</b></li> <li><a href="https://www.medvetforpets.com/asian-american-and-pacific-islander-heritage-month-2021/">https://www.medvetforpets.com/asian-american-and-pacific-islander-heritage-month-2021/</a> <b>AAPI</b></li> </ul>
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INSTRUCTIONAL RESOURCES		
<b>Core Instructional Resource:</b> <ul style="list-style-type: none"><li>Savvas Elevate Science</li></ul>	<b>Teacher Created Materials:</b> <ul style="list-style-type: none"><li>Nearpod</li><li>Google Slides</li><li>Exit Tickets</li></ul>	<b>Supplemental Resources:</b> <ul style="list-style-type: none"><li>Schoolwide Science</li><li>Kahoot</li><li>Blookit</li><li>Edulastic</li><li>Brainpop Jr.</li><li>Schoolwide</li></ul>
INTEGRATED ACCOMMODATIONS AND MODIFICATIONS		
<b>Special Education:</b> 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  <b>English Learners:</b> 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		

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