

**FREEHOLD BOROUGH SCHOOL DISTRICT**  
280 Park Avenue  
Freehold, NJ 07728  
Monmouth County

**Office of Curriculum & Instruction**



**Course Title: Science**

**Grade: 4**

**Board of Education Adoption Date: November 10, 2014**  
**Document F #4**

**Freehold Borough Board of Education**

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## **Freehold Borough School District**

### **District Mission**

We will inspire the creativity and imagination of all students and empower them as knowledgeable, skillful, and confident learners who flourish and contribute willingly in a changing world.

### **Core Beliefs**

#### **We believe that:**

- All people have inherent worth.
- Life-long learning is basic to the survival and advancement of society.
- The primary influence on the individual's development is the family in all its forms.
- Valuing diversity is essential to individual growth and the advancement of society.
- All individuals have strengths and human potential has no known limits.
- Democracy thrives when individuals accept responsibility for their choices.
- Being trustworthy builds trust.
- Creativity and imagination are essential for society to flourish.
- A safe environment is essential for the well-being of the individual and for society to flourish

## **Freehold Borough School District**

### **Philosophy**

The philosophy for our curriculum is developed with a democratic system of beliefs and values. Believing that our students deserve the best education, our curriculum is aligned to the most current New Jersey Core Curriculum Content Standards and current statewide assessments. Our scope and sequence is vertically and horizontally aligned. The progression of objectives embraces decades of rigorous research, conducted both independently and at the university level, and acknowledges that children develop differently and that learning experiences and strategies for performance are differentiated. Our borough is a diverse community, rich in tradition and spirit. Knowledge is a fusion balancing authentic experience and content, which language arts literacy skills are integrated with other content areas. Our curriculum contains common expectations that are rigorous and student centered, and teachers, who are most proximal to the children, will use this document as an instrument to ensure student success.

To ensure that our children are successful and receive the best education, this curriculum document, our staff will continuously collaborate on this living document. We will develop purposeful and effective formative and summative assessments which measure growth of our curriculum and inform our instruction. Finally, we will continuously seek to grow professionally through professional development, which is aligned to statewide regulations, but specifically geared to benefit our curriculum, school, and children.

### **General Curriculum & Instruction Objectives**

- Teachers will employ lessons that are aligned to our curriculum and framed utilizing current research-based methods and techniques that focus on student achievement
- Our lessons will be structured according to statewide and district standards and our teachers will have flexibility to ensure that lessons meet the needs of all learners
- Units and lessons will be differentiated
- Curriculum is be student focused on success and balances developmental theory and psychometric standards
- Democratically developed benchmarks and assessments will be utilized to gauge student and curricular growth. Assessment will be multidimensional and developed according to student need.

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**Pacing Guide (Scope & Sequence – M43, M44)**

Marking Period 1	Marking Period 2	Marking Period 3	Marking Period 4
Chapter 1 – Classifying Plants and Animals *Lesson 1 *Lesson 2 *Lesson 3 *Lesson 4 *Lesson 5 Chapter 1 Assessment  Chapter 2 – Energy from Plants *Lesson 1 *Lesson 2 *Lesson 3 *Lesson 4 Chapter 2 Assessment  Chapter 3 – Ecosystems *Lesson 1 *Lesson 2 *Lesson 3 Chapter 3 Assessment  Chapter 4 – Changes in Ecosystems *Lesson 1 *Lesson 2 *Lesson 3 *Lesson 4 Chapter 4 Assessment	Chapter 5 – Systems of the Human Body *Lesson 1 *Lesson 2 *Lesson 3 *Lesson 4 Chapter 5 Assessment  Chapter 6 – Water Cycle and Weather *Lesson 1 *Lesson 2 *Lesson 3 *Lesson 4 Chapter 6 Assessment  Chapter 7 – Hurricanes and Tornadoes *Lesson 1 *Lesson 2 Chapter 7 Assessment  Chapter 8 – Minerals and Rocks *Lesson 1 *Lesson 2 *Lesson 3 Chapter 8 Assessment	Chapter 11 – Properties of Matter *Lesson 1 *Lesson 2 *Lesson 3 *Lesson 4 Chapter 11 Assessment  Chapter 12 – Heat *Lesson 1 *Lesson 2  Chapter 13- Electricity and Magnetism *Lesson 1 *Lesson 2 *Lesson 3 *Lesson 4 *Lesson 5 Chapter 13 Assessment  Chapter 14 – Sound and Light *Lesson 1 *Lesson 2 *Lesson 3 *Lesson 4 Chapter 14 Assessment  Chapter 15 – Objects in Motion *Lesson 1 *Lesson 2 *Lesson 3 Chapter 15 Assessment	Chapter 16 – Simple Machines *Lesson 1 *Lesson 2 Chapter 16 Assessment  Chapter 17 – Earth’s Cycle *Lesson 1 *Lesson 2 Chapter 17 Assessment  Chapter 18 – Inner and Outer Planets *Lesson 1 *Lesson 2 *Lesson 3 *Lesson 4 Chapter 18 Assessment  Chapter 19 Effects of Technology *Lesson 1 *Lesson 2 Chapter 19 Assessment

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## Content Guide

SUBJECT: Science Grade _4__	Unit Title: Life Science: Classifying Plants and Animals; Energy from Plants; Ecosystems; Changes in Ecosystems (Chapters 1-4_	Suggested Timeline _MP1 (10 weeks)___	Suggested Duration _TBA__ days
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**Big Ideas**

- What are living things made of?
- How do you know that a plant needs light?
- How do organisms interact with each other and with their environment?
- How are ecosystems balanced?

**Standards**

**5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.

**5.3 Life Science:** All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.

<b>Student Learning Objectives</b>	<b>Standards Addressed</b>	<b>Suggested Student Experiences</b>	<b>Suggested Resources / Materials</b>
SWBAT identify the building blocks of life. SWBAT understand how plants and animals are classified? SWBAT describe a plants' characteristics. SWBAT diagram the life cycle of a plant. SWBAT categorize the parts of an ecosystem. SWBAT identify how	5.1.4.A.1, 5.3.4.A.2	<p><u>Activities</u></p> <ol style="list-style-type: none"> <li>1. Draw plant leaves</li> <li>2. Ecosystem Diorama</li> <li>3. Science Journals</li> <li>4. Lab inquiries (See Teacher Edition- Unit A)</li> </ol> <p><u>Interdisciplinary Connections</u></p> See page A3 in the Scott Foresman Teacher Edition___ <p><u>Assessments</u></p> Assessment page TE 1H (Chapter 1)	<ol style="list-style-type: none"> <li>1. Science Workbook</li> <li>2. Graphic Organizers</li> <li>3. Science Activity Book</li> <li>4. Microscopes</li> <li>5. Science Kits</li> <li>6. Activity Flip Charts</li> <li>7. Scott Foresman Science Book</li> <li>8. Guided Readers</li> </ol>

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energy and matter flow in an ecosystem. SWBAT explain how ecosystems are balanced. SWBAT understand how organisms interact and environments change. __		Assessment page TE 41H (Chapter 2) Assessment page TE 73H (Chapter 3) Assessment page TE 105H (Chapter 4)	
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SUBJECT: Science Grade _4__	Unit Title: Life Science/Earth Science_(Chapters 5-8)	Suggested Timeline _MP 2 (10 weeks)__	Suggested Duration __TBA_ days
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**Big Ideas**

- How do the body's smallest and largest parts work together? (Chapter 5)
- How does Earth's water affect weather? (Chapter 6)
- How do storms affect Earth's air, water, land, and living things? (Chapter 7)
- How can rocks tell us about Earth's past, present and future?

**Standards**

**5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.

**5.2 Physical Science:** All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.

<b>Student Learning Objectives</b>	<b>Standards Addressed</b>	<b>Suggested Student Experiences</b>	<b>Suggested Resources / Materials</b>
SWBAT understands the functions of the various body systems. SWBAT identify the major organ systems of the human body system. SWBAT identify the different stages of the water	5.2.4.A.1, 5.1.4.A.4, 5.1.4.B.1	<u>Activities</u> <ol style="list-style-type: none"> <li>1. Create a poster on one of the body systems</li> <li>2. Make a model of the water cycle</li> <li>3. Science Journals</li> <li>4. Graphing temperatures__</li> </ol> <u>Interdisciplinary Connections</u> See page B3 in the Scott Foresman Teacher	<ol style="list-style-type: none"> <li>1. Science Workbook</li> <li>2. Graphic Organizers</li> <li>3. Science Activity Book</li> <li>4. Science Kits</li> <li>5. Activity Flip Charts</li> <li>6. Scott Foresman Science Book</li> <li>7. Guided Readers</li> </ol>

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<p>cycle.</p> <p>SWBAT interpret a weather map.</p> <p>SWBAT understand severe weather phenomena (for example, hurricanes and tornadoes) and related safety concerns.</p> <p>SWBAT develop an understanding of the properties of each mineral.</p> <p>SWBAT describe the rock cycle.____</p>		<p>Edition</p> <p><u>Assessments</u></p> <p>Assessment page TE 137H (Chapter 5)</p> <p>Assessment page TE 177H (Chapter 6)</p> <p>Assessment page TE 209H (Chapter 7)</p> <p>Assessment page TE 233H (Chapter 8)</p>	
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<p>SUBJECT: Science Grade <u>4</u></p>	<p>Unit Title: <u>Physical Science</u> (Chapters 11-15)</p>	<p>Suggested Timeline <u>MP 3 (10 weeks)</u></p>	<p>Suggested Duration <u>TBA</u> days</p>
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**Big Ideas**

- How can matter be compared, measured and combined? (Chapter 11)
- How does heat energy move from one object to another? (Chapter 12)
- What are some ways that energy can be changed from one type to another? (Chapter 13)
- How do sound and light travel? (Chapter 14)
- What causes motion, and how does it affect us? (Chapter 15)

**Standards**

**5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.

**5.2 Physical Science:** All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science

**5.3 Life Science:** All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.



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<b>Student Learning Objectives</b>	<b>Standards Addressed</b>	<b>Suggested Student Experiences</b>	<b>Suggested Resources / Materials</b>
<p>SWBAT identify the properties of matter along with their changes.</p> <p>SWBAT understand why matter has energy.</p> <p>SWBAT understand how heat moves.</p> <p>SWBAT determine how matter becomes charged and how they flow?</p> <p>SWBAT conclude what a magnetic field is and how electricity is transformed to magnetism.</p> <p>SWBAT differentiate sounds (loud, soft, high, low) and determine how the sound varies according to how the object vibrates.</p> <p>SWBAT identify sources of light and demonstrate that light can be reflected from some surfaces and pass through others.</p> <p>SWBAT recognize that changes in speed or direction of a moving object are caused by force and that the greater the force, the greater the change in motion. ____</p>	<p>5.1.4.A.1, 5.1.4.A.2, 5.2.4.A.1, 5.3.4.A.2</p>	<p><u>Activities</u></p> <ol style="list-style-type: none"> <li>1. Make a collage of different properties of objects.</li> <li>2. Find the average temperature in different states</li> <li>3. Create a greenhouse and write a paragraph about it.</li> <li>4. Science Journals</li> </ol> <p><u>Interdisciplinary Connections</u></p> <p>See page C3 in the Scott Foresman Teacher Edition</p> <p><u>Assessments</u></p> <p>Assessment page TE 313H (Chapter 11) Assessment page TE 345H (Chapter 12) Assessment page TE 369H (Chapter 13) Assessment page TE 401H (Chapter 14) Assessment page TE 433H (Chapter 15)</p>	<p><u>Suggested Resources / Materials</u></p> <ol style="list-style-type: none"> <li>1. Science Workbook</li> <li>2. Graphic Organizers</li> <li>3. Science Activity Book</li> <li>4. Science Kits</li> <li>5. Activity Flip Charts</li> <li>6. Scott Foresman Science Book</li> <li>7. Guided Readers</li> </ol>

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SUBJECT: Science Grade <u>4</u>	Unit Title: <u>Space and Technology</u> (Chapters 17, 18, 19)	Suggested Timeline MP 4 (10 weeks)___	Suggested Duration _TBA_ days
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**Big Ideas**

- How are cycles on Earth affected by the Sun and the Moon?
- How is Earth different from other planets in our solar system?
- How do the devices and products of technology affect the way we live?

**Standards**

**5.4 Earth Systems Science:** All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.

<b>Student Learning Objectives</b>	<b>Standards Addressed</b>	<b>Suggested Student Experiences</b>	<b>Suggested Resources / Materials</b>
<p>SWBAT explain how the Earth moves and what patterns can be seen from the sky.</p> <p>SWBAT identify what makes up the universe.</p> <p>SWBAT identify and describe the inner planets.</p> <p>SWBAT determine how technology affects our lives.</p> <p>SWBAT recognize how technology has transformed communication and transportation.____</p>	<p>5.4.4.A.1, 5.4.4.C.1,</p>	<p><u>Activities</u></p> <ol style="list-style-type: none"> <li>1. Create a solar system model</li> <li>2. Science Journals</li> <li>3. Document the faces of the moon</li> <li>4. Describe the characteristics of the Sun</li> <li>5. Create a fact book of any of the inner planets____</li> </ol> <p><u>Interdisciplinary Connections</u></p> <p>See page D3 in the Scott Foresman Teacher Edition ____</p> <p><u>Assessments</u></p> <p>Assessment page TE 489H (Chapter 17) Assessment page TE 513H (Chapter 18) Assessment page TE 544H (Chapter 19)</p>	<ol style="list-style-type: none"> <li>1. Science Workbook</li> <li>2. Graphic Organizers</li> <li>3. Science Activity Book</li> <li>4. Science Kits</li> <li>5. Activity Flip Charts</li> <li>6. Scott Foresman Science Book</li> <li>7. Guided Readers</li> </ol>

**Chapters 9, 10 and 16 can be included into the curriculum at the teacher’s discretion.**

Appendix  
Fourth Grade-Science

In this curriculum document, the 21<sup>st</sup> Century Themes and Skills are integrated in the following units:

Unit 1

<b>In this unit plan, the following 21st Century themes and skills are addressed:</b>			
<b>Check ALL that apply – 21<sup>st</sup> Century Themes</b>		<b>Indicate whether these skills are:</b>	
		<ul style="list-style-type: none"> <li>• E – encouraged</li> <li>• T – taught</li> <li>• A – assessed</li> </ul> <b>Standard 9.1 21<sup>st</sup> Century Life Skills</b>	
<b>X</b>	<b>Global Awareness</b>	<b>A</b>	<b>Creativity and Innovation</b>
	<b>Financial Literacy</b>	<b>A</b>	<b>Critical Thinking and Problem Solving</b>
	<b>Health Literacy</b>	<b>E</b>	<b>Communication (Interpersonal and Media Fluency)</b>
	<b>Civic Literacy</b>	<b>T</b>	<b>Collaboration and Teamwork</b>
<b>X</b>	<b>Career Awareness/Exploration</b>	<b>E</b>	<b>Accountability, Productivity and Ethics</b>

Unit 2

<b>In this unit plan, the following 21st Century themes and skills are addressed:</b>			
<b>Check ALL that apply – 21<sup>st</sup> Century Themes</b>		<b>Indicate whether these skills are:</b>	
		<ul style="list-style-type: none"> <li>• E – encouraged</li> <li>• T – taught</li> <li>• A – assessed</li> </ul> <b>Standard 9.1 21<sup>st</sup> Century Life Skills</b>	
<b>X</b>	<b>Global Awareness</b>	<b>A</b>	<b>Creativity and Innovation</b>
	<b>Financial Literacy</b>	<b>T</b>	<b>Critical Thinking and Problem Solving</b>
	<b>Health Literacy</b>	<b>A</b>	<b>Communication (Interpersonal and Media Fluency)</b>
	<b>Civic Literacy</b>	<b>E</b>	<b>Collaboration and Teamwork</b>
	<b>Career Awareness/Exploration</b>	<b>E</b>	<b>Accountability, Productivity and Ethics</b>

Unit 3

<b>In this unit plan, the following 21st Century themes and skills are addressed:</b>			
<b>Check ALL that apply – 21<sup>st</sup> Century Themes</b>		<b>Indicate whether these skills are:</b>	
		<ul style="list-style-type: none"> <li>• E – encouraged</li> <li>• T – taught</li> <li>• A – assessed</li> </ul> <b>Standard 9.1 21<sup>st</sup> Century Life Skills</b>	
<b>X</b>	<b>Global Awareness</b>	<b>T</b>	<b>Creativity and Innovation</b>
	<b>Financial Literacy</b>	<b>A</b>	<b>Critical Thinking and Problem Solving</b>
	<b>Health Literacy</b>	<b>E</b>	<b>Communication (Interpersonal and Media Fluency)</b>
	<b>Civic Literacy</b>	<b>E</b>	<b>Collaboration and Teamwork</b>
<b>X</b>	<b>Career Awareness/Exploration</b>	<b>E</b>	<b>Accountability, Productivity and Ethics</b>

Unit 4

<b>In this unit plan, the following 21st Century themes and skills are addressed:</b>			
<b>Check ALL that apply – 21<sup>st</sup> Century Themes</b>		<b>Indicate whether these skills are:</b>	
		<ul style="list-style-type: none"> <li>• E – encouraged</li> <li>• T – taught</li> <li>• A – assessed</li> </ul> <b>Standard 9.1 21<sup>st</sup> Century Life Skills</b>	
<b>X</b>	<b>Global Awareness</b>	<b>A</b>	<b>Creativity and Innovation</b>
	<b>Financial Literacy</b>	<b>T</b>	<b>Critical Thinking and Problem Solving</b>
	<b>Health Literacy</b>	<b>E</b>	<b>Communication (Interpersonal and Media Fluency)</b>
	<b>Civic Literacy</b>	<b>E</b>	<b>Collaboration and Teamwork</b>
	<b>Career Awareness/Exploration</b>	<b>E</b>	<b>Accountability, Productivity and Ethics</b>