Full Option Science System
(FOSS™)

Grades K-8

Correlation with

New Jersey

Core Curriculum

Content Standards for Science

Delta Education
...because children learn by doing.®

Correlation of the
New Jersey Science Standards
from the
New Jersey Science Curriculum Framework
to
Full Option Science System

The following correlation of the New Jersey Science Curriculum Framework to the Full Option Science System (FOSS) is to show representative examples of investigations and activities that address listed standards and their objectives. A citation does not reflect all of the investigations or activities that might address a particular standard or objective.

Updated January 2008
Updated July 2008
Updated December 2008

A Correlation of the New Jersey
Grades K-4
(with Cumulative Progress Indicators at Grade 2 & Grade 4)
Science Curriculum Standards
to the
Full Option Science System (FOSS)

STANDARD 5.1 (SCIENTIFIC PROCESSES)
ALL STUDENTS WILL DEVELOP PROBLEM-SOLVING, DECISION-MAKING AND INQUIRY SKILLS, REFLECTED BY FORMULATING USABLE QUESTIONS AND HYPOTHESES, PLANNING EXPERIMENTS, CONDUCTING SYSTEMATIC OBSERVATIONS, INTERPRETING AND ANALYZING DATA, DRAWING CONCLUSIONS, AND COMMUNICATING RESULTS.

A. Habits of Mind

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Raise questions about the world around them and be willing to seek answers through making careful observations and experimentation.		Consistently in the FOSS Science modules, activities are designed around open and guided inquiry about natural phenomena, organisms and events. Additionally, in some modules, in the final session, students individually design their own investigations. The following are examples of both:
	Air and Weather	Investigation 1, Part 4, pp. 21-26
	Animals Two by Two	Investigation 2, Part 1, pp. 9-13
	Balance and Motion	Investigation 3, Part 1, pp. 6-12
	Earth Materials	Investigation 4, Part 2, pp. 14-18
	Fabric	Investigation 1, Part 3, pp. 16-19
	Insects	Investigation 6, Part 1, pp. 8-13
	Magnetism and Electricity	Investigation 5, Part 3, pp. 21-25
	Measurement	Investigation 1, Part 1, pp. 8-15
	New Plants	Investigation 1, Part 2, pp. 13-23
	Wood and Paper	Investigation 2, Part 1, pp. 8-11
	Pebbles, Sand, and Silt	Investigation 4, Part 1, pp. 8-14
	Physics of Sound	Investigation 4, Part 2, pp. 16-20
	Solids and Liquids	Investigation 2, Part 2, pp. 15-20
	Structures of Life	Investigation 4, Part 4, pp. 20-25

	Trees Water Plants and Animals Insects and Plants Sun, Moon and Stars Matter and Energy	Activity 2, Part 4, pp. 20-22 Investigation 4, Part 3, pp. 19-23 Investigation 1, Parts 1-2, pp. 47-62 Investigation 5, Parts 1-3, pp. 206-211 Investigation 1, Parts 1-2, pp. 42-64 Investigation 3, Part 2, pp. 139-150
2. Keep records that describe observations, carefully distinguish actual observations from ideas and speculations, and are understandable weeks and months later.	Student Sheets and Response Sheets, found in the teacher manuals, are used by students to record observations, collect data and interpret results of investigations. It is intended for students to complete these individually and discussed collectively.	
3. Recognize that when a science investigation is replicated, very similar results are expected.	It is intended for students to complete student sheets (for data collection) individually and discussed collectively. This grants opportunities to achieve multiple trials and discuss differences in data among students or student groups using the same/similar procedures.	
4. Know that when solving a problem it is important to plan and get ideas and help from other people.	The FOSS Program encourages and promotes cooperative learning strategies. The quantity of materials included in each kit allows small groups of students (2 or 4) to investigate and record observations and report what he or she has learned. Quality discourse between team members is an integral part of each activity and the nature of the Student Sheets promotes the collection and reporting of data by group or by individuals.	

B. Inquiry and Problem Solving

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Develop strategies and skills for information-gathering and problem-solving using appropriate tools and technologies.	The goal for the FOSS Program is to develop scientific thinking processes to conduct investigations and build explanations (observing, communicating, comparing and organizing.) Evidence of the employment of the skills can be found in the Overview of the FOSS Teacher Guides on pgs.	

	15-16 or 17-18 and in "Purpose" section of each Investigation folio. FOSS Science Stories grant students to develop and enhance literary skills.	
2. Identify the evidence used in an explanation.	Trees	Investigation 3, Part 9, pp. 35-38
	Air and Weather	Investigation 3, Part 3, pp. 17-21
	Earth Materials	Investigation 1, Part 3, pp. 24-29; Investigation 3, Parts 2 & 3, pp. 8-19
	Magnetism and Electricity	Investigation 2, p. 32 *Science Extension;* Investigation 5, Part 3, pp. 21-25
	New Plants	Investigation 3, Part 3, pp. 19-25
	Physics of Sound	Investigation 2, Part 1, pp. 8-12
	Plants and Animals	Investigation 1, Part 2, pp. 58-62
	Sun, Moon and Stars	Investigation 1, Parts 1-2, pp. 42-64
	Matter and Energy	Investigation 3, Part 2, pp. 139-150

C. Safety

SCIENCE STANDARD *By the end of **Grade 4,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that conducting science activities requires an awareness of potential hazards and the need for safe practices.		Safety was an important consideration for the development of the FOSS program. Each kit contains a safety poster, and on page 17 of most guides Safety is addressed and an icon appears in the margin of the instructional directions to indicate possible concerns. See the following examples below:
2. Understand and practice safety procedures for conducting science investigations.	Structures of Life	Investigation 3, Part 1 & 2, pp. 8-19
	Balance and Motion	Investigation 1, Part 2 & 3, pp. 14-23; Investigation 2, Part 3, pp. 20-25; Investigation 3 Part 3, pp. 19-25
	Magnetism and Electricity	Investigation 2, Part 1 & 3, pp. 8-13, 20-25; Investigation 4 Part 3, pp. 19-22
	Human Body	Investigation 1 Parts 1 & 3, pp. 8-15, 21-25
	Sun, Moon and Stars	Investigation 1, Part 2, pp. 50-51

STANDARD 5.2 (SCIENCE AND SOCIETY)
ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF HOW PEOPLE OF VARIOUS CULTURES HAVE CONTRIBUTED TO THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY, AND HOW MAJOR DISCOVERIES AND EVENTS HAVE ADVANCED SCIENCE AND TECHNOLOGY.

A. Cultural Contributions

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
Describe how people in different cultures have made and continue to make contributions to science and technology.	Air and Weather	Investigation 3, p. 34 "Interdisciplinary Connections" *Social Studies*
	Measurement	FOSS Science Stories*, pp. 5-6, 8-9, 11-12, 13*
	Magnetism and Electricity	FOSS Science Stories*, pp. 5, 16, 21-23*
	Earth Materials	FOSS Science Stories*, pp. 8-11,24-29*
	Ideas and Inventions	FOSS Science Stories, *pp. 21, 23-26*
	Sun, Moon and Stars	FOSS Science Resources, *p. 40*

B. Historical Perspectives

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Hear, read, write, and talk about scientists and inventors in historical context.	Magnetism and Electricity	FOSS Science Stories*, pp. 5, 16, 21-23*
	Ideas and Inventions	FOSS Science Stories, *pp. 21, 23-26*
	Measurement	FOSS Science Stories, *pp. 5-6, 8-9, 11-12, 13*
	Earth Materials	FOSS Science Stories, *pp. 8-11,24-29*
	Sun, Moon and Stars	FOSS Science Resources, *pp. 40-46*

STANDARD 5.3 (MATHEMATICAL APPLICATIONS)
ALL STUDENTS WILL INTEGRATE MATHEMATICS AS A TOOL FOR PROBLEM-SOLVING IN SCIENCE, AND AS A MEANS OF EXPRESSING AND/OR MODELING SCIENTIFIC THEORIES.

A. Numerical Operations

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Determine the reasonableness of estimates, measurements, and computations of quantities when doing science.	Measurement	Investigation 1, Part 2, pp. 16-19; Investigation 2, Part 2, pp. 14-17; Investigation 3, Part 2, pp. 14-17; Investigation 4, p. 22-23 "Math Extension"
	Matter and Energy	Investigation 4, Part 1, pp. 174-180
	Structures of Life	Investigation 1, Part 1, pp. 8-17 and p. 34 "Math Extension"
	Trees	Investigation 1, p. 40 "Technology and Home

		Connection"
2. Recognize and comprehend the orders of magnitude associated with large and small quantities.	Insects Measurement New Plants Pebbles, Sand, and Silt Physics of Sound Structures of Life Earth Materials Solids and Liquids Insects and Plants Sun, Moon and Stars Matter and Energy	Investigation 3, Part 3, pp. 21-26 Investigation 2, Part 1, pp. 14-17 Investigation 1, Part 3, pp. 23-30; Investigation 2, Part 2, pp. 15-19 Investigation 2, Parts 1-3, pp. 8-23; p. 32 Home/School Connection Investigation 2, Parts 2 & 3, pp. 13-24 Investigation 2 Part 3, pp. 18-22 Investigation 2 Part 2, pp. 14-21 Investigation 1, Part 1, pp. 8-16 Investigation 2, p. 116 Math Extension Investigation 1, pp. 68-69 Math Extension Investigation 3, Part 2, pp. 139-150
3.Express quantities using appropriate number formats, such as: • integers • fractions	Balance and Motion Air and Weather Insects	Investigation 3, Part 1, pp. 6-13 Investigation 2, Parts 1-4, pp. 8-27 Investigation 4, Parts 1-5, pp. 10-31

B. Geometry and Measurement

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Select appropriate measuring instruments based on the degree of precision required.	Measurement Matter and Energy	In this module students learn to use multiple measurement instru- ments including mass sets, meter tapes, beakers (1-liter, 100 ml,) 50 ml syringes, thermometers etc. Investigation 3, Parts 2-3, pp. 139-160; Investigation 4, Part 1, pp. 174-180
2. Use a variety of measuring instruments and record measured quantities using the appropriate units.	Trees, Animals Two by Two Wood and Paper Pebbles, Sand, and Silt Solids and Liquids Measurement Earth Materials	Activity 3, Part 5, pp. 9-10 Investigation 3, Part 2, pp. 13-16 Investigation 1, Part 4, pp. 24-27, and p. 34 Math Extension Investigation 2, Parts 1 & 2, pp. 8-17 Investigation 3, p. 28-30 Math Extension Investigation 1, Parts 2- 3, pp. 16-24; Investigation 2, Parts 1-3, pp. 8-24; Investigation 3, Parts 1-3, pp. 8-21; Investigation 4, Parts 1-3, pp. 8-21 Investigation 1, Part 1, pp. 8-16 and p. 31 Math

		Extension
	Human Body	Investigation 4, Parts 2 & 3, pp. 17-24
	Air and Weather,	Investigation 1, Part 3, pp. 17-20; Investigation 2, Parts 2 & 4, pp. 14-19, 24-27
	New Plants,	Investigation 2, Part 2, pp. 15-19
	Physics of Sound,	Investigation 2, Part 2, pp. 13-19
	Magnetism and Electricity	Investigation 1, Parts 3, pp. 23-29
	Structures of Life	Investigation 1, Part 3, pp. 28-33, Investigation 3, p. 31 Math Extension; Investigation 4, Part 3, pp. 20-24
	Matter and Energy	Investigation 3, Part 2-3, pp. 139-160; Investigation 4, Part 1, pp. 174-180

C. Patterns and Algebra

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Identify patterns when observing the natural and constructed world.	Trees	Investigation 3, Part 1 & 6, pp. 10-11, 26-28
	Air and Weather	Investigation Part 4 Part 2 & 3, pp. 12-21; Science Stories, pp. 18-23 *"Seasons"*
	Insects	Investigation 3, Parts 2 & 3, pp. 12-26; Investigation 4, Part 3, pp. 19-22; Investigation 5 Part 3, pp. 20-24; "Science Stories , pp. 16-21 "*Insect Life Cycles*"
	New Plants	Investigation 1, Part 2, pp. 13-22
	Balance and Motion,	Investigation 1, Part 3, p. 27 "Math Extensions" Investigation 2, Parts 1-2, pp. 8-19
	Fabric	Investigation 1 Parts 3 & 5, pp. 16-19, 23-28; Science Stories, pp. 3-15 "*What is Fabric Made From*?"
	Solids and Liquids	Investigation 1, Part 2, pp. 17-20.; Investigation 2, Part 3, pp. 21-27; Investigation 3, Part 3, pp. 19-23; Science Stories, pp. 8-17 "*Solids and Liquids*" "*Solids to Liquids and Back Again*"
	Animals Two by Two	Investigation 1, Part 3, pp. 22-25; Investigation 2, Part 3, pp. 18-21; Investigation 3, Part 3, pp. 17-20; Investigation 4, Parts 3 & 4, pp. 16-23
	Physics of Sound	Investigation 1, Part 2; Investigation 2, Parts 2 & 3; Investigation 4, Part 1; Science Stories, pp. 11-14 *"Highs and Lows"* and *"Making Waves"*
	Insects and Plants	Investigation 2, Part 2, pp. 13-19

	Sun, Moon and Stars	Investigation 2, Part 2, pp. 89-100

D. Data Analysis and Probability

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Use tables and graphs to represent and interpret data.		In all FOSS Modules recommended for Grades K-4, students organize data in tables and graphs, draw/ diagram evidence and provide explanations. The most evident component to convey the way this is done is through the *Student Sheets* that accompany the lessons. The black line masters are found in each Teacher's Guide and are visually embedded in the margin of each lesson plans at appropriate places. Examples are:
	Wood and Paper	Investigation 1, Parts 4-5, pp. 24-32
	Air and Weather	Investigation 4, Part 1, pp. 8-11
	New Plants	Investigation 2, Part 3, pp. 20-28
	Human Body	Investigation 4, Parts 1 & 2, pp. 8-19
	Measurement	Investigation 4, Part 2, pp. 14-17 & p. 24 "Home School"
	Magnetism and Electricity	Investigation 1, Part 3, pp. 23-29; Investigation 4, Part 2, pp. 14-18 & p. 23 Math Extension
	Plants and Animals	Investigation 1, Part 3, pp. 63-72
	Sun, Moon and Stars	Investigation 2, Part 2, pp. 89-100
	Matter and Energy	Investigation 3, Parts 2-3, pp. 139-160

STANDARD 5.4 (NATURE AND PROCESS OF TECHNOLOGY)
ALL STUDENTS WILL UNDERSTAND THE INTERRELATIONSHIPS BETWEEN SCIENCE AND TECHNOLOGY AND DEVELOP A CONCEPTUAL UNDERSTANDING OF THE NATURE AND PROCESS OF TECHNOLOGY.

A. Science and Technology

Indicators for this strand are introduced at a higher grade level.

B. Nature of Technology

SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Select and use simple tools and materials to complete a task.	Measurement	Investigation 1, Part 1, pp. 8-15; Investigation 2, Parts 2 & 3, pp. 14-24; Investigation 3, Parts 2 & 3, pp. 14-21; Investigation 4, Parts 1-3, pp. 8-21;
	Earth Materials	Investigation 1, Part 1, pp. 8-15
	Human Body	Investigation 4, Part 1, pp. 8-16
	Pebbles, Sand, and Silt	Investigation 1, Parts 1-3, pp. 8-21; Investigation

		2, Parts 1-3, pp. 8-23; Investigation 3, Part 2, pp. 12-15; Investigation 4, Part 1, pp. 8-14; Science Stories, pp. 24-25 *"Testing Soil"*
	Ideas and Inventions	Investigation 4, Part 3, pp. 18-21
	Plants and Animals	Investigation 1, Part 3, pp. 63-72
	Sun, Moon and Stars	Investigation 1, Part 1, pp. 42-55
	Matter and Energy	Investigation 3, Parts 2-3, pp. 139-160; Investigation 4, Part 1, pp. 174-180

C. Technological Design

SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Make a plan in order to design a solution to a problem.		FOSS Modules appropriate for grades 3-6 incorporate a culminating event of the module where students design their own investigation. During the implementation of the module, students are encouraged to develop some inquiry questions that might come up in a discussion. The teacher maintains a folder for the inquiries. This can be a resource for students to use as they go about choosing their own investigation. Students present the investigation and results to the class. Below are a few references:
	Magnetism and Electricity	Investigation 5, Part 3, pp. 21-25
	Human Body	Investigation 4, Part 4, pp. 25-29
	Ideas and Inventions	Investigation 4, Part 4, pp. 22-25
	Structures of Life	Investigation 5, Part 4, pp. 25-29
	Physics of Sound	Investigation 4, Part 2, pp. 16-20
	Earth Materials	Investigation 4, Part 2, pp. 14-18
	Water	Investigation 4, Part 4, pp. 24-28
2. Describe a toy or other familiar object as a system with parts that work together.	Animals Two by Two	Investigation 1, Part 1, pp. 10-16; Investigation 2, Parts 1 & 3, pp. 9-13, 18-21; Investigation 3 Part 1, pp. 8-12; Investigation 4, Part 1, pp. 10-15
	Trees	Investigation 1, Part 5, pp. 25-25; Investigation 2, Part 1, pp. 6-9
	Balance and Motion	Investigation 2, Part 1, pp. 8-13; Investigation 3, Parts 1-3, pp. 6-25
	Human Body	Investigation 1, Part 1, pp. 8-15 Investigation 2, Part 3, pp. 18-22 Investigation 3, Part 1, pp. 8-14 Investigation 4, Part 1, pp. 8-16 Science Stories, pp. 1-4 *"The Marvelous Machine, The Shape of Your Shape"* & pp. 14-16 *Muscles*

		and Muscles and Bones Working Together.
	Insects	Investigation 1, Part 1, pp. 8-15; Investigation 2, Part 2, pp. 14-19; Investigation 3, Part 3, pp. 21-26; Investigation 4, Parts 1 & 4, pp. 10-13, 23-27; Investigation 5, Part 2, pp. 16-19
	Structures of Life	Investigation 1, Part 3, pp 28-33; Investigation 3, Part 1, pp. 8-15; Investigation 4, Part 1, pp. 8-13
	Matter and Energy	Investigation 1, Part 1, pp. 50-62

A. Science and Technology

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Distinguish between things that occur in nature and those that have been designed to solve human problems.	Wood and Paper	Investigation 2, Parts 3 & 4, pp. 16-23; Investigation 3, Parts 3 & 4, pp. 18-25; Investigation 4, Parts 1 & 2, pp. 8-17
	Pebbles, Sand, and Silt	Investigation 3, Parts 1-5, pp. 8-29; Science Stories, pp. 16-19 *Making Things With Rocks*
	Earth Materials	Science Stories, pp. 24-29 *Rocks of Ages, A Series of Stories About Monuments*
	Ideas and Inventions	Investigation 1, Parts 2 & 3, pp. 14-21; Investigation 2, Parts 2 & 3, pp. 16-22; Investigation 3, Parts 2 & 3, pp.14-21; Investigation 4, Parts 2 & 4, pp. 14-25; Science Stories, pp. 1-3 *Creative Solutions; pp. 9-10 A Close Look at the World, A Self-Made Inventor; pp. 17-18 Covering Up Her Mistakes, An Inventive Farmer; pp. 21-22 Shoes for the World, An Improving Computer*
	Plants and Animals	FOSS Science Resources, *pp. 12-14, The Story of Wheat*
	Sun, Moon and Stars	FOSS Science Resources, *pp. 40-43, Looking Through Telescopes*
	Matter and Energy	FOSS Science Resources *pp. 1-13, Energy Sources; Energy Conversion*

B. Nature of Technology

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Demonstrate how measuring instruments are used to gather information in order to design things that work properly.	Fabric	Investigation 1, Part 4, pp. 20-22
	Insects	Investigation 1, Parts 1-3, pp. 8-25; Investigation 2, Parts 1-3, pp. 8-24
	Pebbles, Sand, and Silt	Investigation 2, Parts 1-3, pp. 8-23

C. Technological Design

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe a product or device in terms of the problem it solves or the need it meets.	Ideas and Inventions Matter and Energy	Investigation 1, Part 3, pp. 18-21; FOSS Science Stories, pp. 1-3 *Creative Solutions;* Investigation 2, Part 3, pp. 20-22; FOSS Science Stories, p. 18 *An Inventive Farmer;* Investigation 4, Part 3, pp. 18-21 FOSS Science Resources, *Pages 6-7 Batteries*
2. Choose materials most suitable to make simple mechanical constructions.	Ideas and Inventions Wood and Paper	Investigation 1, Part 3, pp. 18-21; FOSS Science Stories, pp. 1-3 *Creative Solutions;* Investigation 2, Part 3, pp. 20-22; FOSS Science Stories, p. 18 *An Inventive Farmer;* Investigation 4, Part 3, pp. 18-21; Investigation 5, Parts 1-3, pp. 8-21; FOSS Science Stories, p. 24 *I Am Wood;*
3. Use the design process to identify a problem, look for ideas, and develop and share solutions with others.	Ideas and Inventions Magnetism and Electricity Physics of Sound	Investigation 1, Part 3, pp. 18-21; FOSS Science Stories, pp. 1-3 *Creative Solutions;* Investigation 2, Part 3, pp. 20-22; FOSS Science Stories, p. 18 *An Inventive Farmer;* Investigation 4, Part 3, pp. 18-21 Investigation 5, Part 3, pp. 21-25 Investigation 4, Part 2, pp. 16-20

STANDARD 5.5 (CHARACTERISTICS OF LIFE)
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, CHARACTERISTICS, AND BASIC NEEDS OF ORGANISMS AND WILL INVESTIGATE THE DIVERSITY OF LIFE.

A. Matter, Energy and Organization in Living Systems

SCIENCE STANDARD *By the end of **Grade 2,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Investigate the basic needs of humans and other organisms.	Animals Two by Two New Plants Insects Structures of Life Plants and Animals	Investigation 1, Part 2, pp. 17-21 Investigation 1, Part 2, pp. 13-22; Investigation 2, Part 1, pp. 8-14; Investigation 3, Part 1, pp. 8-13; Investigation 4, Part 1, pp. 7-12; Science Stories, pp. 3-7 *What Do Plants Need?* Investigation 1, Part 1, pp. 8-15; Investigation 3, Part 2, pp. 12-20; Investigation 6, Part 1, pp. 8-13 Investigation 2, Part 2, pp. 14-17 Investigation 4, Part 1, pp. 8-13 Investigation 5, Part 1, pp. 8-12 Investigation 3, Parts 1-2, pp. 120-134 FOSS Science Resources, *pp. 3-7 What Do Plants Need ; pp. 21-23 What Do Animals Need*

	Insets and Plants	Investigation 1, Part 1, pp. 52-61; Investigation 2, Part 2, pp. 95-104; Investigation 3, Part 2, pp. 134-144; Investigation 4, Part 2, pp. 170-174
2. Compare and contrast essential characteristics that distinguish living things from nonliving things.	Trees	Investigation 1, Part 2, pp. 15-19
	Insects	Investigation 1, Parts 1 & 2, pp. 8-21
	New Plants	Investigation 1, Parts 1-3, pp. 8-30
	Insects and Plants	Investigation 1, Parts 1-3, pp. 71-73; Investigation 5, Parts 1-3, pp. 206-225
	Plants and Animals	Investigation 1, Part 2, pp. 58-62; Investigation 3, Parts 1-3, pp. 120-140

B. Diversity and Biological Evolution

SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1.Recognize that different types of plants and animals live in different parts of the world.	Trees	Science Stories, pp. 3-13 *Where Do Trees Grow?*
	New Plants	Science Stories, pp. 22-39 *Plants Around the World*
	Insects	Science Stories, pp. 3-7 *So Many Kinds, So Many Places*
	Insects and Plants	Science Resources, pp. 3-7 *So Many Kinds, So Many Places*
	Plants and Animals	Science Resources, pp. 28-46 *Plants and Animals Around the World* Video: *How Plants Live in Different Places*
2. Recognize that some kinds of organisms that once lived on earth have completely disappeared.	Earth Materials	Science Stories, pp. 1-4 *Written in Stone*

C. Reproduction and Heredity

SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that humans and other organisms resemble their parents.	Animals Two by Two	Investigation 5, Parts 1-3; Science Stories, pp. 20-23 *Eggs and Chicks*
	New Plants	Investigation 1, Parts 1-3, pp. 8-30; p. 32 Science Extension
	Insects	Investigation 3, Parts 1-3, pp. 8-26; Science Stories, pp. 8-11 *Insect Shapes and Colors*
	Structures of Life	Science Stories, pp. 20-21 *The Life Cycle of a Crayfish*
	Insects and Plants	Investigation 3, Part 3, pp. 145-151; Science Resources, pp. *20-24 Variation*

A. Matter, Energy and Organization in Living Systems

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Identify the roles that organisms may serve in a food chain.	Structures of Life	Science Stories, p. 43 *The Food Web*
	Water	Science Stories, pp. 5-7 *The Pond*
	Plants and Animals	Investigation 3, Parts 1-2, pp. 120-134; Science Resources, *pp. 22, 47-50 Animal Teeth*
	Insects and Plants	Science Resources, *p. 6*
2. Differentiate between the needs of plants and those of animals.	Animals Two by Two	Investigation 1, Part 2, pp. 17-21
	New Plants	Investigation 1, Part 2, pp. 13-22; Science Stories, pp. 3-7 *What Do Plants Need?*
	Insects	Investigation 3, Part 2, pp. 12-20
	Structures of Life	Investigation 3, Part 2, pp. 16-19 Investigation 4, Part 1, pp. 8-13
	Plants and Animals	Investigation 3, Parts 1-2, pp. 120-134 FOSS Science Resources, *pp. 3-7 What Do Plants Need ; pp. 21-23 What Do Animals Need*
	Insects and Plants	Investigation 1, Part 1, pp. 52-61; Investigation 2, Part 2, pp. 95-104; Investigation 3, Part 2, pp. 134-144; Investigation 4, Part 2, pp. 170-174
3. Recognize that plants and animals are composed of different parts performing different functions and working together for the well being of the organism.	Animals Two by Two	Investigation 1, Part 1, pp. 10-16; Investigation 2, Parts 1 & 3, pp. 9-13, 18-21; Investigation 3 Part 1, pp. 8-12; Investigation 4, Part 1, pp. 8-11
	Trees	Investigation 1, Part 5, pp. 25-27; Investigation 2, Part 1, pp. 6-9
	Human Body	Investigation 1, Part 1, pp. 8-15 Investigation 2, Part 3, pp. 18-22 Investigation 3, Part 1, pp. 8-14 Investigation 4, Part 1, pp. 8-16 Science Stories, pp. 1-4 *"The Marvelous Machine, The Shape of Your Shape"* & pp. 14-16*Muscles and Muscles and Bones Working Together.*
	Insects	Investigation 1, Part 1, pp. 8-15; Investigation 2, Part 2, pp. 14-19; Investigation 3, Part 3, pp. 21-26; Investigation 4, Parts 1 & 4, pp. 10-13, 23-27; Investigation 5, Part 2, pp. 14-17
	Structures of Life	Investigation 1, Part 3, pp. 28-33; Investigation 3, Part 1, pp. 8-15; Investigation 4, Part 1, pp. 8-13
	Insects and Plants	Investigation 1, Parts 1-3, pp. 52-75; Investigation 2, Part 3, pp. 105-115; Investigation 3, Parts 1-3, pp. 129-151; investigation 5, Parts 1-3, pp. 206-225; Science Resources, *pp. 30-33 What Makes an*

		Insect an Insect
	Plants and Animals	Investigation 1, Parts 1, 3, pp. 47-57, 63-72; Investigation 2, Parts 1-3, pp. 87-108; Science Resources, *pp. 3-7 What Do Plants Need*
4. Describe the basic functions of the major systems of the human body including but not limited to: • digestive system • circulatory system • respiratory system • nervous system • skeletal system • muscular system • reproductive system	Human Body	Investigation 1, Parts 1 & 2, pp. 8-20; Investigation 2, Part 4, pp. 23-25; Investigation 3, Parts 1 & 2, pp. 8-18; Science Stories, pp. 1-4 *The Marvelous Machine, The Shape of Your Shape; pp. 10, 12Your Amazing Opposable Thumb; Comparing Joints; pp. 17-20 Space Race; pp. 28-29 The Circulatory System*

B. Diversity and Biological Evolution

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Develop a simple classification scheme for grouping organisms.	Animals Two by Two,	Investigation 2, Part 4, pp. 22-24
	Trees,	Investigation 1, Parts 1-6, pp. 7-30; Investigation 2, Parts 2-6, pp. 10-28
	Insects	Investigation 1, Part 2, pp. 16-21 Science Stories, pp. 3-7 *So Many Kinds, So Many Places*
2. Recognize that individuals vary within every species, including humans.	Animals Two by Two	Investigation 1, Part 4, pp. 26-29; Investigation 2, Part 3, pp. 18-21; Investigation 3, Part 3, pp. 17-20; Science Stories, pp. 3-19 *Learning about Animals, Goldfish and Guppies; Land and Water Snails; Big Worms and Little Worms; Isopods*
	Insects	Investigation 3, Part 3, pp. 21-26; Investigation 4, Part 4, pp. 23-27; Investigation 5, Part 3, pp. 20-24; Science Stories, pp. *16-21 Insect Life Cycles; pp. 3-7 So Many Kinds, So Many Places*
	Insects and Plants	Investigation 3, Part 3, pp. 145-151; Science Resources, pp. *20-24 Variation*

C. Reproduction and Heredity

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Identify different stages in the lives of various organisms.	Insects	Investigation 3, Part 3, pp. 21-26; Investigation 4, Part 4, pp. 23-27; Investigation 5, Part 3, pp. 20-24; Science Stories, pp. 16-21 *Insect Life Cycles;*
	New Plants	Investigation 1, Parts 1-3, pp. 8-30
	Structures of Life	Investigation 2, Part 3, pp. 18-22; Science Stories, pp. 20-21 *The Life Cycle of a Crayfish*; FOSS Web Activity: Life Cycles
	Insects and Plants	Investigation 1, Parts 1-3, pp. 52-75, Investigation

		2, Part 3, pp. 105-115, Investigation 3, Parts 1-3, pp. 145-151; Investigation 4, Parts 1-5, pp. 166-191; Investigation 5, Parts 1-3, pp. 206-225; Science Resources, *pp. 37-55 Insect Life Cycles ; Life Goes Around*

STANDARD 5.6 (CHEMISTRY)
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE AND BEHAVIOR OF MATTER.

A. Structure and Properties of Matter

SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Sort objects according to the materials from which they are made or their physical properties, and give a rationale for sorting.	Fabric	Investigation 2, Part 1, pp. 7-11
	Wood and Paper	Investigation 1, Parts 1, 2, pp. 8-19
	Solids and Liquids	Investigation 1, Parts 1-2, pp. 8-20
	Pebbles, Sand, and Silt	Investigation 1, Parts 3-4, pp. 18-25
	Ideas and Inventions,	Investigation 2, Parts 1-2, pp. 8-19
	Magnetism and Electricity	Investigation 1, Part 1, pp. 8-17
	Matter and Energy	Investigation 3, Part 1, pp. 129-138
2. Use magnifiers to observe materials, then draw and describe what more can be seen using the tools.	Trees,	Investigation 3, Part 5, pp. 22-25
	Insects,	Investigation 1, Parts 1-3, pp. 8-25; Investigation 2, Parts 1-3, pp. 8-24
	Fabric	Investigation 1, Part 4, pp. 20-22
	Pebbles, Sand, and Silt	Investigation 1, Parts 1-3, pp. 8-21
	Air and Weather	Investigation 2, Part 4, pp. 24-27
3. Observe that water can be a liquid or a solid and can change from one form to the other.	Water	Investigation 3, Parts 1-4, pp. 8-26; Science Stories, pp. 13-16 *Evaporation and Condensation; The Water Cycle;* FOSS Web Activity: *Evaporation*
	Solids and Liquids	Investigation 4, Part 1, pp. 7-16
	Matter and Energy	Investigation 4, Part 2; Science Resources, pp.54-56 Ch*ange of State*

B. Chemical Reactions

Indicators for this standard are introduced at a higher grade level.

A. Structure and Properties of Matter

SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Sort materials based on physical characteristics that can be seen by	Pebbles, Sand, and Silt	Investigation 1, Parts 1-3, pp. 8-21

using magnification.	Solids and Liquids	Investigation 2, Parts 1-3, pp. 10-27
2. Observe that water can be a liquid or a solid and can change from one form to the other and the mass remains the same.		
3. Recognize that water, as an example of matter, can exist as a solid, liquid or gas and can be transformed from one state to another by heating or cooling.	Water Solids and Liquids Matter and Energy	Investigation 3, Parts 1-4, pp. 8-26; Science Stories, pp. 13-16 E*vaporation and Condensation; The Water Cycle;* FOSS Web Activity: *Evaporation* Investigation 4, Part 1, pp. 7-16 Investigation 4, Part 2; FOSS Science Resources, pp. 54-56 *Change of State*
4. Show that not all materials respond the same way to what is done to them.	Solids and Liquids Matter and Energy	Investigation 4, Parts 1 & 2, pp. 7-22; FOSS Science Stories, pp. 18-23 *Mix It Up!* Investigation 4, Part 2, FOSS Science Resources, pp.54-56 *Change of State*

B. Chemical Reactions

SCIENCE STANDARD *By the end of **Grade 4,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Combine two or more materials and show that the new material may have properties that are different from the original material.	Solids and Liquids Wood and Paper Pebbles, Sand, and Silt Matter and Energy	Investigation 4, Parts 1-3, pp. 7-27; FOSS Science Stories, pp. 18-23 *Mix It Up!* Investigation 2, Parts 3 & 4, pp. 16-23 Investigation 3, Parts 3-5, pp. 16-29; FOSS Science Stories, pp. 16-19 *Making Things With Rocks* Investigation 4, Part 3, pp. 193-203

STANDARD 5.7 (PHYSICS)

ALL STUDENTS WILL GAIN AN UNDERSTANDING OF NATURAL LAWS AS THEY APPLY TO MOTION, FORCES, AND ENERGY TRANSFORMATIONS.

A. Motions and Forces

SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Distinguish among the different ways objects can move such as: • fast and slow. • in a straight line. • in a circular path. • back and forth	Balance and Motion Water	Investigation I Parts 1-3, pp. 8-23; Investigation 3, Parts1-3, pp. 6-25; FOSS Science Stories, pp. 10-13*Push or Pull?; pp. 22-31 Things That Spin; Rolling, Rolling, Rolling;* Investigation 4, Part 2; FOSS Science Stories, pp. 22-23 *The Power of Water*
2. Show that the position and motion of an object can be changed by pushing or pulling the object.	Physics of Sound Balance and Motion	Investigation 1, Part 3, pp. 21-29; Investigation 2, Parts 1-3, pp. 8-24; FOSS Science Stories *Highs and Lows; Making Waves* Investigation 2, Parts 1 & 2, pp. 8-19; FOSS Science Stories, pp. 10-13 *Push or Pull?*

B. Energy Transformations		
SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Demonstrate that sound can be produced by vibrating objects.	Physics of Sound	Investigation 1, Part 3, pp. 21-29; Investigation 2, Parts 1-3, pp. 8-24; Investigation 3, Parts 1&2, pp. 8-19; FOSS Science Stories, pp. 1-6 *Seeing the World Through Sound; Listen to This; pp. 9-21 Your Source and Receiver; Highs and Lows; Making Waves; Scoping Out Sound; Moving Along; Bouncing Back*
A. Motions and Forces		
SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that changes in the speed or direction of a moving object are caused by force and that the greater the force, the greater the change in motion will be.		
2. Recognize that some forces can act at a distance. • gravity • magnetism • static electricity	Magnetism and Electricity	Investigation 1, Parts 1-4, pp. 8-34; FOSS Science Stories, pp. 5-6 *Magnificent Magnet Models; How Magnets Interact; pp. 10-11 Making Static*
B. Energy Transformations		
SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Identify sources of heat and demonstrate that heat can be transferred from one object to another.	Air and Weather	Investigation 2, Part 2, pp. 14-19
2. Identify sources of light and demonstrate that light can be reflected from some surfaces and pass through others.	Ideas and Inventions Matter and Energy	Investigation 4, Parts 1-3, pp. 8-21; FOSS Science Stories, pp. 28-32 *Light and Reflection; Making Mirrors* Investigation 2, Parts 1-2, pp. 93-114; FOSS Science Resources, Pages 24-28, 33-36 *Light*
3. Use devices that show electricity producing heat, light, sound, and magnetic effects.	Magnetism and Electricity Matter and Energy	Investigation 2, Parts 1-4, pp. 8-29; Investigation 3, Parts 1-3, pp. 10-26; Investigation 4, Parts 1-3, pp. 8-22; Investigation 5, Parts 1 & 2, pp. 8-20; FOSS Science Stories, pp. 28-37 *Magnets and Electricity in Your Life; Morse Gets Clicking: A Story of Samuel Morse;* FOSS Web Activity: *Electromagnets* Investigation 1, Parts 1 & 3, pp. 50-62, 71-82
4. Show that differences in sound (loud or soft, high or low) can be produced by varying the way objects vibrate.	Physics of Sound Matter and Energy	Investigation 1, Part 3, pp. 21-29; Investigation 2, Parts 1-3, pp. 8-24; Investigation 4, Part 1, pp. 6-15; FOSS Science Stories, pp. 11-18 *Highs and Lows; Making Waves; Sound Off; Scoping Out Sound;* Investigation 1, Part 3, pp. 71-82

STANDARD 5.8 (EARTH SCIENCE)
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, DYNAMICS, AND GEOPHYSICAL SYSTEMS OF THE EARTH.

A. Earth's Properties and Materials		
SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Observe and describe rocks and soil.	Pebbles, Sand, and Silt Earth Materials	Investigation 2, Parts 3-4, pp. 18-29; Investigation 4, Parts 1-3, pp. 8-25; Science Stories, pp. 20-23 *What is Soil?* Investigation 1, Parts 1-3, pp. 8-29; Investigation 2, Parts 1, 2, pp. 8-21; Investigation 4, Parts 1, 2, pp. 8-18; Science Stories, pp. 1-4 *Written in Stone; FOSS Web, Activity*: Rock Database
B. Atmosphere and Water		
SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Identify the sources and uses of water.	Water Solids and Liquids	Investigation 4, Part 1, pp. 8-13; FOSS Science Stories, pp. 14-21 *The Water Cycle; Water, A Vital Resource* Investigation 4, Parts 1 & 2, pp. 7-22; FOSS Science Stories, pp. 18-23 *Mix It Up*
2. Recognize that water can disappear (evaporate) and collect on cold surfaces (condense).	Water	Investigation 3, Parts 1-4, pp. 8-26; FOSS Science Stories, pp. 12-16 *Wet and Dry Places; Evaporation and Condensation; The Water Cycle;* FOSS Web, Activity: *Evaporation*; FOSS Web, Picture: *Water Cycle*
3. Describe current weather conditions and recognize how these conditions affect our daily lives.	Air and Weather	Investigation 2, Parts 1-4, pp. 8-27; Investigation 3, Parts 2&4, pp. 12-16, 22-27; FOSS Science Stories, pp. 7-13 *What's the Weather Today?*
4. Describe daily and seasonal changes and patterns in the weather.	Air and Weather	Investigation 2, Parts 1-4, pp. 8-27; Investigation 3, Parts 2&4, pp. 12-16, 22-27; Investigation 4, Parts 1 & 2, pp. 8-18; FOSS Science Stories, pp. 18-23 *Understanding the Weather; Seasons*
C. Processes that Shape the Earth ***Indicators for this standard are introduced at a higher grade level.***		
D. How We Study the Earth		
SCIENCE STANDARD *By the end of **Grade 2,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Record observations that describe the features of the natural world in their local environment.	Air and Weather Pebbles, Sand, and Silt Landforms	Investigation 4, Part 3, pp. 19-21 Investigation 4, Parts 2 & 3, pp. 15-25; FOSS Science Stories, pp. 20-23 *What is Soil?* In this module students study landforms as a natural feature. It is recommended for Grades 5-6. The following references meet this standard. Investigation 1, Part 3, pp. 20-24; Investigation 2, Parts 2 & 3, pp. 8-22; Investigation 3, Parts 2 & 3, pp. 15-24; Investigation 4, Parts 1-3, pp. 8-24; FOSS Science Stories, pp. 15-21 *Rivers and Controlling the Flow; pp. 30-34 The Story of Mt. Shasta; Topographic Maps; pp. 22-29 Shapes of*

		the Earth; FOSS Web Movie: *Grand Canyon Rapids*
A. Earth's Properties and Materials		
SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Observe that most rocks and soils are made of several substances or minerals.	Pebbles, Sand, and Silt Earth Materials	Investigation 1, Parts 1 & 2, pp. 8-17; Investigation 3, Parts 3 & 4, pp. 16-23; Investigation 4, Parts 1-3, pp. 8-24; FOSS Science Stories, pp. 3-7 *Exploring Rocks; pp. 10-13The Story of Sand; pp. 20-25 What is in Soil?; Testing Soil* Investigation 1, Parts 1-4, pp. 8-29; Investigation 2, Parts 1 & 2, pp. 8-21; Investigation 3, Parts 1 & 2, pp. 8-19; Investigation 4 Part 1, pp. 8-13; FOSS Science Stories, pp. 1-9 *Written I Stone; Postcards from the Ledge; Treasure Underfoot; pp. 12-15 Digging it Up: Mining for Minerals; Birthstones, A Mineral for Each Month; pp. 16-19 Old Man and the Rock; pp. 24-29 Rock of Ages, A Series of Stories About Monuments;* FOSS Web Activity: *Rock Database*
2. Observe that properties of soil vary from place to place and will affect the soil's ability to support life.	Pebbles, Sand, and Silt	Investigation 4, Parts 1-3, pp. 8-24; FOSS Science Stories, pp. 20-25 *What is in Soil?; Testing Soil*
3. Recognize that air is a substance that surrounds us, takes up space, and moves around us as wind.	Air and Weather	Investigation 1, Parts 1-6, pp. 8-38; Investigation 2, Part 3, pp. 20-23; Investigation 3, Parts 1-5, pp. 8-33; FOSS Science Stories, pp. 3-6 *What Is All Around Us?; pp. 14-17Understanding Weather*
B. Atmosphere and Water		
SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that air is a substance that surrounds us, takes up space, and moves around us as wind.	Air and Weather	Investigation 1, Parts 1-6, pp. 8-38; Investigation 2, Part 3, pp. 20-23; Investigation 3, Parts 1-5, pp. 8-33; FOSS Science Stories, pp. 3-6 *What Is All Around Us?; pp. 14-17 Understanding Weather;*
2. Recognize that most of Earth's surface is covered by water and be able to identify the characteristics of those sources of water. • oceans • rivers • lakes •underground sources •glaciers	Water Landforms (Recommended for Grades 5 & 6) Air and Weather	Investigation 1, Part 1, pp. 8-13; Investigation 4, Part 1, pp. 8-13; Interdisciplinary Connections*: Science and Social Studies;* FOSS Science Stories, pp. 1-2 *Report from the Blue Planet; pp. 5-9The Pond; Ice is Everywhere; pp. 14-21The Water Cycle; Water, A Vital Resource;* FOSS Web Activity: *Match the Resource* Investigation 2, Part 2, pp. 16-22; Investigation 3, Part 2, pp. 15-19 Investigation 2, Part 4, pp. 24-27
3. Observe weather changes and patterns by measurable quantities such as temperature, wind direction and speed, and amounts of precipitation.	Air and Weather	Investigation 2, Part 3, pp. 20-23; Investigation 3, Parts 2 & 3, pp. 12-21; Investigation 4, Part 1, pp. 8-11; FOSS Science Stories, pp. 14-17 *Understanding Weather;*
4. Observe that when liquid water disappears, it turns into a gas	Water	Investigation 3, Parts 1-4, pp. 8-26; FOSS Science Stories, pp. 12-16 *Wet and Dry Places;*

(vapor) in the air and can reappear as a liquid when cooled, or as a solid if cooled below its freezing point.		*Evaporation and Condensation; The Water Cycle;* FOSS Web, Activity: *Evaporation*; FOSS Web, Picture: *Water Cycle;*
5. Observe that rain, snow and other forms of precipitation come from clouds, but that not all clouds produce precipitation.	Air and Weather	Investigation 2, Part 3 & 4, pp. 20-27
6. Recognize that clouds and fog are made of tiny droplets of water and possibly tiny particles of ice.	Air and Weather	Investigation 2, Part 3, pp. 20-23
C. Processes that Shape the Earth		
SCIENCE STANDARD *By the end of **Grade 4,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that some changes of the Earth's surface are due to slow processes such as erosion and weathering, and some changes are due to rapid changes such as landslides, volcanic eruptions, and earthquakes.	Landforms (Recommended for Grades 5-6) Water	Investigation 2, Parts 1 & 2, pp. 8-22; Investigation 3, Parts 1 & 2, pp. 8-24; FOSS Science Stories, pp. 15-21 *Rivers and Controlling the Flow* Investigation 2, Part 3, pp. 19-24
2. Recognize that moving water, wind, and ice continually shape the Earth's surface by eroding rock and soil in some areas and depositing them in other areas.	Landforms (Recommended for Grades 5-6) Water	Investigation 2, Parts 1 & 2, pp. 8-22; Investigation 3, Parts 1 & 2, pp. 8-24; FOSS Science Stories, pp. 15-21 *Rivers and Controlling the Flow;* Investigation 1, Part 3, pp. 19-23; FOSS Science Stories, p. 4 *Which Way Does It Go? pp. 8-11 Ice is Everywhere; Ice History*
D. How We Study the Earth		
SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Use maps to locate and identify physical features on the Earth.	Landforms (Recommended for Grades 5-6) Water	Investigation 1, Parts 2 & 3, pp. 16-24; FOSS Science Stories, pp. 1-8 *Maps and How They Are Made; Ancient Maps* FOSS Science Stories, pp. 14-16 *The Water Cycle*

STANDARD 5.9 (ASTRONOMY & SPACE SCIENCE)
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE ORIGIN, EVOLUTION, AND STRUCTURE OF THE UNIVERSE

A. Earth, Moon, Sun System		
SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that the sun supplies light and heat to the Earth.	Air and Weather Solar Energy (Recommended for Grades 5-6) Sun, Moon and Stars	Investigation 4, Part 2, pp. 12-18; FOSS Science Stories, pp. 18-23 *The Seasons* Investigation 1 Parts 1 & 2, pp. 8-21; Investigation 2, Part 1, pp. 8-15; Investigation 4, Part 1, pp. 8-19; FOSS Science Stories, pp. 1-7 *The Sun; pp. 12-15 The Effects of the Sun; pp. 22-25 The Sun and the Weather* Investigation 1, Parts 1-2, pp. 42-64; Science Resources, pp. 1-3, *Sunrise and Sunset*

	Matter and Energy	FOSS Science Resources, p. 1 *Energy Sources*
2. Observe the patterns of day and night and the movements of the shadows of an object on the Earth during the course of the day.	Air and Weather Solar Energy (Recommended for Grades 5-6) Sun, Moon and Stars	Investigation 4, Parts 2 & 3, pp. 12-21; FOSS Science Stories, pp. 18-23 *Seasons;* Investigation 1 Parts 1 & 2, pp. 8-21; FOSS Science Stories, pp. 8-11 *Shadows; Building Time Devices;* FOSS Web Activity: Lunar Calendar Investigation 1, Parts 1-2, pp. 42-64; Science Resources, pp. 3-11, *The Sun*
B. Solar System		
SCIENCE STANDARD *By the end of **Grade 2,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that the sun can only be seen during the day, but the moon can be seen sometimes at night and sometimes during the day.	Air and Weather Sun, Moon and Stars	Investigation 4 Part 3, pp. 19-21 Investigation 1, Parts 1-2, pp. 42-64; Investigation 2, Parts 1-2, pp. 79-100; Science Resources, pp. 1-3, Sunrise and Sunset; pp. 25-30 *The Lunar Cycle*
C. Stars		
SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Observe that stars are many, scattered, and different in brightness.	Sun, Moon and Stars	Investigation 3, Parts 1-2, pp. 114-130; Science Resources, pp. 35-39 *Stargazing*
2. Observe that the position of the stars, with respect to each other (constellations) is unchanging.	Sun, Moon and Stars	Investigation 3, Part 1, pp. 114-125; Science Resources, pp. 35-39 *Stargazing*
D. Galaxies and Universe ***Indicator for this standard are introduced at a higher grade level.***		
A. Earth, Moon, Sun System		
SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Observe patterns that result from the Earth's position relative to the sun and rotation of the Earth on its axis.	Air and Weather Models and Designs (Recommended for Grades 5-6) Sun, Moon and Stars	Investigation 4, Part 2, pp. 12-18; FOSS Science Stories, pp. 18-23 *Seasons* FOSS Science Stories, pp. 5-10 *Scientists and Models* Investigation 1, Parts 1-2, pp. 42-64; Investigation 2, Parts 1-2, pp. 79-100; Science Resources, pp. 4-8, *Changing Shadows;* pp. 24-32 *The Lunar Cycle*
2. Recognize and describe the phases of the moon.	Air and Weather Sun. Moon and Stars	Investigation 4, Part 3, pp. 19-21 Investigation 2, Parts 1-2, pp. 79-100; Science Resources, pp. 19-32 *Changing Moon*
B. Solar System		
SCIENCE STANDARD *By the end of **Grade 4,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe Earth as one of several planets that orbit the sun and the moon as a satellite of the Earth.	Models and Designs (Recommended for Grades 5-6) Sun, Moon and Stars	FOSS Science Stories, pp. 5-10 *Scientists and Models* Investigation 3, Part 2, pp. 126-130; Science Resources, pp. 16-17, *Planets*; pp. 20-24 *The Moon 's Position*

C. Stars		
SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Observe that stars are not all the same in brightness, size, and color.	Models and Designs (Recommended for Grades 5-6) Sun, Moon and Stars	FOSS Science Stories, pp. 5-10 *Scientists and Models* FOSS Science Resources, p. 15 *Stars* Video: *All About Stars*
D. Galaxies and Universe		
SCIENCE STANDARD *By the end of **Grade 4**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that images of celestial objects can be magnified and seen in greater detail when observed using binoculars and light telescopes.	Models and Designs (Recommended for Grades 5-6) Sun, Moon and Stars	FOSS Science Stories, pp. 5-10 *Scientists and Models* Investigation 3, Part 2, pp. 126-130; Science Resources, pp. 40-43 *Looking through Telescopes*
2. Observe and record short-term and long-term changes in the night sky.	Air and Weather Sun, Moon and Stars	Investigation 3, Part 3, pp. 19-21 Investigation 2, Parts 1-2, pp. 79-100

STANDARD 5.10 (ENVIRONMENTAL STUDIES)
ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE ENVIRONMENT AS A SYSTEM OF INTERDEPENDENT COMPONENTSAFFECTED BY HUMAN ACTIIVTY AND NATURAL PHENOMENA.

A. Natural Systems and Interactions		
SCIENCE STANDARD *By the end of **Grade 2**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Associate organisms' basic needs with how they meet those needs within their surroundings.	Animals Two by Two Trees New Plants Insects Plants and Animals Insects and Plants	Investigation 1, Part 2, pp. 17-21; Investigation 2, Part 1, pp. 9-13; Investigation 4, Part 4, pp. 20-23; FOSS Science Stories, *pp. 4, 6, 10, 12, 18* Investigation 1, Parts 2, 8, pp. 15-19, 35-37; FOSS Science Stories, *p. 15* Investigation 1, Part 2, pp. 13-22; Investigation 2, Part 1, pp. 8-14; FOSS Science Stories, *pp. 3-7* Investigation 1, Part 1, pp. 8-15; Investigation 2, Part 1, pp. 8-13; Investigation 3, Part 2, pp. 12-21; Investigation 4, Part 2, pp. 14-18; Investigation 5, Part 1, pp. 10-15; Investigation 6, Parts 1-3, pp. 8-22 Investigation 3, Parts 1-2 FOSS Science Resources, *Pages 3-7, 21-23* Investigation 1, Part 1, pp. 52-61; Investigation 2, Part 2, pp. 95-104; Investigation 3, Part 2, pp. 134-144; Investigation 4, Part 2, pp. 170-174

B. Human Interactions and Impact		
SCIENCE STANDARD *By the end of **Grade 2,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Identify various needs of humans that are supplied by the natural or constructed environment.	Wood and Paper Trees Fabric Pebbles, Sand and Silt New Plants Plants and Animals	FOSS Science Stories, *pp. 3-6, 15-18, 21-23* FOSS Science Stories, *pp. 12, 14-21* FOSS Science Stories, *pp. 4-15* FOSS Science Stories, *pp. 16-19* FOSS Science Stories, *pp. 10-21* FOSS Science Resources, *pp. 9-14*

A. Natural Systems and Interactions		
SCIENCE STANDARD *By the end of **Grade 4,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Differentiate between natural resources that are renewable and those that are not.	Water Physics of Sound	FOSS Web, Activity: *Match the Resource* FOSS Science Stories, pp. 22-25 (These pages provide the opportunity to address this standard).
B. Human Interactions and Impact		
SCIENCE STANDARD *By the end of **Grade 4,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Explain how meeting human requirements affects the environment.	Earth Materials Structures of Life Water	FOSS Science Stories, *pp. 12-13, 34-39* FOSS Science Stories, *pp. 4-5* FOSS Science Stories, *pp. 17-20, 23*

A Correlation of the New Jersey Grades 5-8 Science Curriculum Standards to the Full Option Science System (FOSS)

STANDARD 5.1 (SCIENTIFIC PROCESSES)
ALL STUDENTS WILL DEVELOP PROBLEM-SOLVING, DECISION-MAKING AND INQUIRY SKILLS, REFLECTED BY FORMULATING USABLE QUESTIONS AND HYPOTHESES, PLANNING EXPERIMENTS, CONDUCTING SYSTEMATIC OBSERVATIONS, INTERPRETING AND ANALYZING DATA, DRAWING CONCLUSIONS, AND COMMUNICATING RESULTS.

A. Habits of Mind		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Evaluate the strengths and weaknesses of data, claims, and arguments.	Variables	Investigation 4, Parts 2 and 3, pp. 12-23
	Models and Designs	Investigation 2, Parts 1 and 2, pp. 8-21
	Living Systems	Investigation 3, Part 3, pp. 136-141
	Water Planet	Investigation 2, Parts 2-3, pp. 86-100
	Electronics	Investigation 5, Part 3, pp. 171-174
	Planetary Science	Investigation 2, Part 1, pp. 64-70 Investigation 4, Part 4, pp. 136-140 CD: Lunar Myths
	Populations and Ecosystems	Investigation 10, Part 1, pp. 302-310
2. Communicate experimental findings to others.	Landforms	Investigation 1, Parts 1-3, pp. 8-24; Investigation 3, Parts 1-3, pp. 8-24; Investigation 5, Part 4, pp. 27-31
	Models and Designs	Investigation 4, Parts 1, & 2, pp. 6-15
	Environments	Investigation 1, Parts 1, & 2, pp. 8-19
	Solar Energy	Investigation 3, Parts 1, & 2, pp. 8-23
	Food and Nutrition	Investigation 4, Part 2, pp. 16-20
	Living Systems	Investigation 3, Part 3, pp. 136-141
	Water Planet	Investigation 3, Part 1, pp. 125-135
	Earth History	Investigation 8, Part 4, pp. 271-274
	Electronics	Investigation 6, Part 3, pp. 195-200
	Human Brain and Senses	Investigation 7, Parts 1-3, pp. 210-230

	Populations and Ecosystems	Investigation 6, Parts 1-3, pp. 179-186
3. Recognize the results of scientific investigations are seldom exactly the same and that replication is often necessary.	Variables Mixtures and Solutions Solar Energy Water Planet Human Brain and Senses	Investigation 3, Parts 1-4, pp. 8-27 Investigation 3, Part 3, pp. 21-24 Investigation 4, Part 4, pp. 29-33 Investigation 3, Part 1, pp. 125-135 Investigation 4, Parts 1-3, pp. 120-143
4. Recognize that curiosity, skepticism, open-mindedness, and honesty are attributes of scientists.	 Food and Nutrition Variables Solar Energy Human Brain and Senses	In all FOSS modules, students work in cooperative groups and employ the nature of scientific activity, which involves, skepticism and alternative explanations, intellectual honesty and proprietary discovery. This standard is addressed in the end of module projects for each of the Grades 5-6 FOSS modules and most FOSS Middle School modules. See for example: Investigation 4, Part 2, pp. 16-20 Investigation 4, Part 4, pp. 24-28 Investigation 4, Part 3, pp. 24-28 Investigation 4, Parts 1-3, pp. 120-143; Investigation 9, Part 2, pp. 270-275
B. Inquiry and Problem Solving		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Identify questions and make predictions that can be addressed by conducting investigations.	Variables Environments Solar Energy Landforms Levers and Pulleys Food and Nutrition Living Systems Water Planet Diversity of Life Earth History Planetary Science	Investigation 1, Part 2, pp. 16-22 Investigation 2, Parts 2-4, pp. 16-30 Investigation 3, Parts 1 & 2, pp. 8-23 Investigation 5, Part 4, pp. 27-31 Investigation 4, Part 3, pp. 21-25 Investigation 4, Part 2, pp. 18-21 Investigation 3, Part 3, pp. 136-141 Investigation 2, Parts 2-3, pp. 86-100 Investigation 8, Part 2, pp. 244-252 Investigation 4, Part 3, pp. 138-146 Investigation 5, Parts 2 & 3, pp. 158-167
2. Design and conduct investigations incorporating the use	Variables (Note: this standard is the focus of	Investigation 1, Parts 2 & 3, pp. 16-27; Investigation 2, Part 2, pp. 14-18; Investigation

of a control.	the entire Variables module.)	3, Parts 2-4, pp. 14-27; Investigation 4, Parts 3 & 4, pp. 18-28; FOSS Science Stories, pp. 18-20 *Experimental Design*
	Food and Nutrition,	Investigation 2, Parts 1-2, pp. 8-21
	Environments,	Investigation 5, Parts 1-3, pp. 8-18
	Water Planet	Investigation 2, Parts 2-3, pp. 86-100
	Electronics,	Investigation 3, Parts 1-4, pp. 119-135
	Human Brain and Senses	Investigation 4, Parts 1-3, pp. 120-143
3. Collect, organize, and interpret the data that result from experiments.		"Science Inquiry" is the nature of the FOSS Program thus, the orientation of the investigations is dependent the development of the tools of scientific inquiry including skills in making critical observations, collecting and organizing data. Examples of how these are used can be found in the following references:
	Solar Energy	Investigation 3, Part 1, pp. 8-16
	Variables	Investigation 3, Part 2, pp. 14-19
	Living Systems	Investigation 2, Part 1, pp. 85-98
	Water Planet	Investigation 3, Part 1, pp. 125-135
	Diversity of Life	Investigation 8, Part 2, pp. 244-252
	Electronics	Investigation 3, Part 2, pp. 124-127
	Planetary Science	Investigation 5, Part 2, pp. 158-163
	Earth History	Investigation 4, Part 3, pp. 138-146
	Human Brain and Senses	Investigation 2, Part 3, pp. 77-83
	Weather and Water	Investigation 4, Part 1, pp. 121-130
C. Safety		
SCIENCE STANDARD *By the end of **Grade 8,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Know when and how to use appropriate safety equipment with all classroom materials.		Each FOSS module contains a set of student safety rules (along with a poster), as well as safety warnings and reminders. Safety procedures are described in the "Overview" of each module (pg. 17) as well as a "safety glasses icon" printed in the outside margin or context of the teacher pages of the Investigations as a reminder of precautions. Some examples are:
	Mixtures and Solutions,	Investigation 1, Part 1, pp. 8-15
	Environments,	Investigation 4, Part 2, pp. 13-8
	Food and Nutrition,	Investigation 2, Part 1, pp. 8-17

	Levers and Pulleys Human Brain and Senses Electronics Planetary Science	Investigation 3, Part 1, pp. 8-15 Investigation 2, Parts 1-3, pp. 67-83 Investigation 4, Part 1, pp. 143-148 Investigation 4, Part 1, pp. 120-125
2. Understand and practice safety procedures for conducting science investigations.	See above references.	

STANDARD 5.2 (SCIENCE AND SOCIETY)
ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF HOW PEOPLE OF VARIOUS CULTURES HAVE CONTRIBUTED TO THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY, AND HOW MAJOR DISCOVERIES AND EVENTS HAVE ADVANCED SCIENCE AND TECHNOLOGY.

A. Cultural Contributions		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that scientific theories: a. develop over time b. depend on the contributions of many people, and c. reflect the social and political climate of their time.		Two features in the FOSS program provide opportunities for students to become acquainted with scientists having varying cultural backgrounds. Two are the *Science and Social Studies* component that appears in the "Interdisciplinary Connection" feature that follows every FOSS Investigation. The other is in the FOSS Science Stories including the "Super Scientists" feature (Grades 5 & 6). See the following specific examples:
	Solar Energy	FOSS Science Stories, p. 25
	Models and Designs	FOSS Science Stories, pp. 5-10 & 29-32
	Food and Nutrition	FOSS Science Stories, pp. 24-26
	Mixtures and Solutions	FOSS Science Stories, pp. 8-10; 12-13, & 22
	Water Planet	FOSS Science Resources, pp. 15, 96
	Earth History	Resources, pp. 79, 83-85
	Planetary Science	Resources, pp. 52-53
	Electronics	Investigation 4, Part 2, pp. 149-151 **Video**: *Television: Window to the World*
	Planetary Science	Resources, pp. 71-73
	Populations and Ecosystems	Resources, pp. 46-55
2. Know that scientists are men and women of many cultures who often work together to solve scientific and technological problems.	Solar Energy	FOSS Science Stories, pp. 25;
	Models and Designs	FOSS Science Stories, pp. 5-10 & 29-32;

	Food and Nutrition	FOSS Science Stories, pp. 24-26;
	Mixtures and Solutions	FOSS Science Stories, pp. 8-10; 12-13, & 22;
	Water Planet	FOSS Science Resources, pp. 15, 18-19, 96
	Earth History	Resources, pp. 79, 83-85
	Planetary Science	Resources, pp. 52-53
	Electronics	Investigation 4, Part 2, pp. 149-151 Video: *Television: Window to the World*
	Planetary Science	Resources, pp. 71-73
	Populations and Ecosystems	Resources, pp. 46-55
3. Describe how different people in different cultures have made and continue to make contributions to science and technology.	Mixtures and Solutions	FOSS Science Stories, pp. 5, 9, 10, 22, 27, 29
	Models and Designs	FOSS Science Stories, pp. 5-7, 9, 10
	Variables	FOSS Science Stories, pp. 21-28
	Water Planet	FOSS Science Resources, pp. 15, 18-19, 96
	Electronics	Investigation 4, Part 2, pp. 149-151 Video: Television: Window to the World
	Planetary Science	Resources, pp. 71-73
	Populations and Ecosystems	Resources, pp. 46-55
B. Historical Perspectives		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe the impact of major events and people in the history of science and technology, in conjunction with other world events.	Food and Nutrition	FOSS Science Stories, pp. 5, 9, 10-13, 16-19, 21-26, 30-42
	Solar Energy	FOSS Science Stories, pp. 16-17, 22-23, 24-32
	Variables	FOSS Science Stories, pp. 8-9, 15-28, 32-33
	Models and Designs	FOSS Science Stories, pp. 17-20, 25-42
	Electronics	Investigation 4, Parts 1-2, pp. 143-151; video about television Resources, pp. 1-4,18-25,31-36
	Human Brain and Senses	Investigation 5, Parts 1-4, pp. 152-175; Resources, pp. 1-8, 31-36 MRI, EEG
2. Describe the development and exponential growth of scientific knowledge and technological innovations.	Food and Nutrition Solar	FOSS Science Stories, pp. 5, 9, 10-13, 16-19, 21-26, 30-42
	Energy	FOSS Science Stories, pp. 16-17, 22-23, 24-32
	Variables	FOSS Science Stories, pp. 8-9, 15-28, 32-33
	Models and Designs	FOSS Science Stories, pp. 17-20, 25-42

	Electronics	Investigation 4, Parts 1-2, pp. 143-151; Resources, pp. 143-152 including video about television
	Human Brain and Senses	Investigation 5, Parts 1-4, pp. 152-175; Resources, pp. 1-8, 31-36 MRI, EEG

STANDARD 5.3 (MATHEMATICAL APPLICATIONS)
ALL STUDENTS WILL INTEGRATE MATHEMATICS AS A TOOL FOR PROBLEM-SOLVING IN SCIENCE, AND AS A MEANS OF EXPRESSING AND/OR MODELING SCIENTIFIC THEORIES.

A. Numerical Operations

SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Express quantities using appropriate number formats, such as: • decimals • percents • scientific notation	Levers and Pulleys	Investigation 1, Part 2, pp. 18-23
	Solar Energy	Investigation 1, pp. 22-23 "*Math Problem of the Week*"; Investigation 3, p. 25 "*Math Problem of the Week*";
	Variables	Investigation 1, p. 29 "*Math Problem of the Week*"
	Food and Nutrition	Investigation 1, pp. 22-23 "*Math Problem of the Week*"; Investigation 3, pp. 26-27 "*Math Problem of the Week*";
	Landforms	Investigation 3, pp. 26-27 "*Math Problem of the Week*"; Investigation 4, p. 26-27 "*Math Problem of the Week*";
	Environments	Investigation 2, p. 31 "*Math Problem of the Week*"
	Living Systems	FOSS Science Resources, p. 53
	Electronics	Investigation 3, Part 3, pp. 128-132
	Planetary Science	Investigation 6, Part 2, pp. 197-200

B. Geometry and Measurement

SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Perform mathematical computations using labeled quantities and express answers in correctly derived units.	Food and Nutrition	Investigation 1, pp. 22-23 "*Math Problem of the Week*"; Investigation 3, pp. 26-27 "*Math Problem of the Week*";
	Electronics	Investigation 3, Part 3, pp. 128-132
	Solar Energy	Investigation 1, pp. 22-23 "*Math Problem of the Week*"; Investigation 3, p. 25 "*Math Problem of the*

		Week";
	Planetary Science	Investigation 2, Part 2, pp. 71-77; Investigation 6, Part 2, pp. 197-200; Investigation 7, Part 2, pp. 222-229
	Electronics	Investigation 8, Part 4, pp. 265-271; Investigation 5, Part 3, pp. 171-174

C. Patterns and Algebra

SCIENCE STANDARD *By the end of **Grade 8,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Express physical relationships in terms of mathematical equations derived from collected data.	Levers and Pulleys	Investigation 4, pp. 26-27 "*Math Problem of the Week*"
	Models and Designs	Investigation 3, pp. 24-25 "*Math Problem of the Week*";
	Electronics	Investigation 8, Part 4, pp. 265271; Investigation 6, Part 3, pp. 195-200

D. Data Analysis and Probability

SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1.Represent and describe mathematical relationships among variables using: • graphs • tables	Levers and Pulleys	Investigation 1, Parts 2 & 3, pp. 18-28
	Variables	Investigation 1, Part 3, 23-27
	Solar Energy	Investigation 2, Part 2, pp. 16-24; Investigation 3, Parts 1 & 2, pp. 8-23
	Landforms	Investigation 1, Parts 1-3, pp. 8-24; Investigation 3, Parts 1-3, pp. 8-24
	Food and Nutrition	Investigation 1, Part 1, pp. 8-15
	Models and Designs	Investigation 4, Parts 1 & 2, pp. 6-15
	Environments	Investigation 1, Parts 1 & 2, pp. 8-19
	Water Planet	Investigation 3, Part 1, pp. 125-135
	Human Brain and Senses	Investigation 7, Parts 1-3, pp. 210-230
	Electronics	Investigation 3, Parts 1-3, pp. 119-132
	Populations and Ecosystems	Investigation 6, Parts 1-3, pp. 179-197
	Diversity of Life	Investigation 9, Part 2, pp. 278-285
2. Analyze experimental data sets using measures of central tendency: • mean • mode • median	Landforms	Investigation 1, p. 26 "*Math Problem of the Week*";
	Variables	Investigation 4, p. 30 "*Math Problem of the Week*";
	Models and Designs	Investigation 2, p. 26 "*Math Problem of the Week*";

3. Construct and use a graph of experimental data to draw a line of best fit and identify a linear relationship between variables when appropriate.	Levers and Pulleys	Investigation 1, Parts 2 & 3, pp. 18-28
	Variables	Investigation 1, Part 3, pp. 23-27
	Models and Designs	Investigation 3, pp. 24-25 *"*Math Problem of the Week*"*
	Solar Energy	Investigation 1, p. 22-23 *"Math Problem of the Week";* Investigation 2, Part 2, pp. 16-24; *& pp. 26-27"Math Problem of the Week";*
	Mixtures and Solutions	Investigation 2*,* p. 30*"Math Problem of the Week";*
	Planetary Science	Investigation 5, Part 4, pp. 168-173
	Human Brain and Senses	Investigation 7, Part 1, pp. 210-218
	Electronics	Investigation 6, Part 3, pp. 195-200; Investigation 8, Part 3, pp. 261-264
	Diversity of Life	Investigation 10, Part 2, pp. 310-316
4. Use computer spreadsheets, graphing and database applications to assist in quantative analysis of data.	This standard is also addressed well in the end of module projects suggested for each Grades 3-6 FOSS Module.	
	Weather and Water	CD ROM FOSS *Weather Chart Spreadsheet*

STANDARD 5.4 (NATURE AND PROCESS OF TECHNOLOGY)
ALL STUDENTS WILL UNDERSTAND THE INTERRELATIONSHIPS BETWEEN SCIENCE AND TECHNOLOGY AND DEVELOP A CONCEPTUAL UNDERSTANDING OF THE NATURE AND PROCESS OF TECHNOLOGY.

A. Science and Technology
Reinforce indicators from previous grade level

B. Nature of Technology
Reinforce indicators from previous grade level

C. Technological Design

SCIENCE STANDARD *By the end of* ***Grade 6,*** *the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Select a technological problem and describe the criteria and constraints that are addressed in solving the problem.	Models and Designs	Investigation 1, Part 3, pp. 22-25 Investigation 4, Part 3, pp. 16-20
	Variables	Investigation 4, Part 4, pp. 24-28
	Solar Energy	Investigation 4, Part 4, pp. 29-33
	Electronics	Investigation 2, Part 4, pp. 104-107; Investigation 5, Part 1, pp. 161-165; Investigation 7, Part 3, pp. 231-237
2. Identify the basic components of		

a technological system: • input • process • output • feedback		
A. Science and Technology		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Compare and contrast science with technology, illustrating similarities and differences between those two human endeavors.	Models and Designs Solar Energy Electronics Planetary Science	FOSS Science Stories, pp. 25-36 *Early Autos"; "Henry Ford and His Model T"; "On the Line"* and pp. 44-47 *Smart Cars and Space Planes* FOSS Science Stories, pp. 29-33 "*Solar Technology"; Solar Cookers in Third World Countries;* Investigation 4, Part 2, pp. 149-151 **Video**; *Television: Window to the World*; Resources, Pages 34-36 CD *Space Exploration, Moon Before Apollo*
B. Nature of Technology		
SCIENCE STANDARD *By the end **of Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Analyze a product or system to determine the problem it was designed to solve, the design constraints, trade-offs and risks involved in using the product or system, how the product or system might fail, and how the product or system might be improved.	Models and Designs Variables Solar Energy Electronics	Investigation 1, Part 3, pp. 22-25 Investigation 4, Part 3, pp. 16-20 Investigation 4, Part 4, pp. 24-28 Investigation 4, Part 4, pp. 29-33 Investigation 2, Part 4, pp. 104-107; Investigation 5, Part 1, pp. 161-165; Investigation 7, Part 3, pp. 231-237
C. Technological Design		
SCIENCE STANDARD *By the end **of Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize how feedback loops are used to control systems.		

STANDARD 5.5 (CHARACTERISTICS OF LIFE)
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, CHARACTERISTICS, AND BASIC NEEDS OF ORGANISMS AND WILL INVESTIGATE THE DIVERSITY OF LIFE.

A. Matter, Energy and Organization in Living Systems		
SCIENCE STANDARD *By the end **of Grade 6** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Explain how systems of the body are interrelated and regulate the body's internal environment.	Food and Nutrition Living Systems	FOSS Science Stories, pp. 6-9 "*The Digestive System"*; pp. 16-19 "*Living with Diabetes";* Investigation 1, Parts 1-3, pp. 51-70; *FOSS Science Resources,* pp. 2-13 *Living Cells*

	Human Brain and Senses Diversity of Life	Investigation 2, Parts 1-3, pp. 67-83; Investigation 5, Parts 1-4, pp. 152-175; *Resources, pp. 3-20,40-44,45-49,55-79* CD-ROM
2. Identify and describe the structure and function of cells and cell parts.	Human Brain and Senses Diversity of Life	Resources, pp. 36-37, 60, 65 Investigation 4, Parts 1 & 2, pp. 133-141; Resources, pp. 8, 9, 27-30, 38; CD, Lab: *Cells and the Ribbon of Life*
B. Diversity and Biological Evolution		
SCIENCE STANDARD *By the end of **Grade 6,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe and give examples of the major categories of organisms and of the characteristics shared by organisms.	Environments Diversity of Life	FOSS Science Stories, pp. 21-22 *Beetles; The Darkling Beetle; Isopods; p. 42 Brine Shrimp* Investigation 10, Parts 1-3, pp. 302-321; Resources. pp. 65-70; CD-ROM *Explore the House of IBTL*
2. Compare and contrast acquired and inherited characteristics in human and other species.	Populations and Ecosystems	Investigation 9, Parts 1-2, pp. 262-273; CD-ROM *Larkeys, Offspring Genotype and Phenotype; Larkeys, Impossible Traits; Larkeys, Punnett Square;* Investigation 10, Parts 1-3, pp. 302-317; Video: *Voyage to Galapagos;* Resources, pp. 58 & 70-71; CD- ROM: *Larkeys, Natural Selection; Larkeys, Selective Breeding; Walkingstick Predation*
C. Reproduction and Heredity		
SCIENCE STANDARD *By the end **of Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe the life cycles of humans and other organisms.	Environments Diversity of Life	Investigation 5, Parts 1 & 2, pp. 8-18; FOSS Web Site Activity: Life Cycles Investigation 5, Part 1 & 2, pp. 151-164; CD Database: *Seeds;* Investigation 7, Part 1 and 2, pp. 218-229; CD Database: *Flowers*; Resources Pages 40-45
A. Matter, Energy and Organization in Living Systems		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Explain how the products respiration and photosynthesis are recycled.	Environments Living Systems Diversity of Life	Investigation 4, Parts 1-3, pp. 8-22; FOSS Science Stories, pp. 36-37 *Water Pollution: The Lake Erie Story; Sources of Water Pollution* Investigation 3, Parts 1-2, pp. 118-135; *FOSS Science Resources, pp. 31-36, 47-48* Investigation 6, Parts 1-3, pp. 186-202; Resources, pp.21-23,28,36-39; CD-ROM *Database* and *Lab*
2. Recognize that complex multicellular organisms, including humans, are composed of and defined by interactions of the following: • cells	Environments Food and Nutrition Living Systems	FOSS Science Stories, pp. 18-20 *Beetles* FOSS Science Stories, pp. 6-9 *The Digestive System* Investigation 1, Parts 1-3, pp. 51-70; *FOSS*

• tissues • organs • systems	Human Brain and Senses Diversity of Life	*Science Resources,* pp. 2-13 *Living Cells* Investigation 4, Part 2, pp. 129-135 Investigation 4 Parts 1-2, pp. 133-141 ; CD-ROM: *Elodea leaf Tissue;* Video**:** *Lab Techniques; Database;* Resources, pp. 24-26 *The Lowly Paramecium*
B. Diversity and Biological Evolution		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Compare and contrast kinds of organism using their internal and external characteristics.	Environments Diversity of Life	FOSS Science Stories, pp. 18-22 *Beetles; The Darkling Beetle; Isopods; p. 42 Brine Shrimp* Investigation 10, Parts 1-3, pp. 302-321; Resources, pp. 65-70; CD-ROM *Explore the House of IBTL*
2. Discuss how changing environmental conditions can result in evolution or extinction of a species.	Populations and Ecosystems	Investigation 9, Parts 1-4, pp. 262-291; CD-ROM: *Larkeys, Offspring Genotype and Phenotype; Larkeys, Impossible Traits;* CD-ROM: *Larkeys, Punnett Square;* Investigation 10, Parts 1-2, pp. 302-315; Video: *Voyage to the Galapagos;* Resources, pp. 58-61 *Natural and Unnatural Selection;* CD-ROM: *Larkeys, Natural Selection; Larkeys, Selective Breeding; Walkingstick Predation*
3. Recognize that individual organisms with certain traits are more likely to survive and have offspring.	Diversity of Life Populations and Ecosystems	Investigation 8, Parts 1 & 3, pp. 239-243, 253-259; CD-ROM *Snails*; Investigation 9, Parts 1 & 2, pp. 273-285; Resources, pp. 55-64 *The Insect Empire; Those Amazing Insects* Investigation 8, Parts1 & 2, pp. 228-243; **Video** *Hawaii: Strangers in Paradise;* CD-ROM; Investigation 9, Part 1, pp. 262-266; CD-ROM *Larkeys Offspring Genotype and Phenotype; Larkeys, Impossible Traits;*; Investigation 10, Part1, pp. 302-310
C. Reproduction and Heredity		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe how the sorting and recombining of genetic material results in the potential for variation among off spring of humans and other species.	Populations and Ecosystems	Investigation 9, Parts1-4, pp. 262-291; Resources, pp. 46-55 *From Mendel to Human Genome: Solving the Heredity Puzzle;*

STANDARD 5.6 (CHEMISTRY)
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE AND BEHAVIOR OF MATTER.

A. Structure and Properties of Matter		
SCIENCE STANDARD *By the end of **Grade 6, t**he student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that about 100	Mixtures and Solutions	FOSS Science Stories, pp. 29-36 *Ask a*

different elements have been identified and most materials on Earth are made of a few of them.	Chemical Interactions	*Chemist; The Periodic Table* Investigation 2, Parts 1-2, pp. 70-80; FOSS Resources, pp. 3-13 *Elements*; CD, Periodic Table
2. Show that equal volumes of different substances usually have different masses.	Variables Weather and Water Planetary Science	FOSS Science Stories, pp. 10-11 Investigation 5, Part 1, pp. 152-162 Investigation 8, Parts 3-4, pp. 260-270
3. Describe the properties of mixtures and solutions, including concentration and saturation.	Mixtures and Solutions, Earth History Chemical Interactions	Investigation 1, Part 1, pp. 8-15 Investigation 4, Parts 1-3, pp. 8-24; FOSS Science Stories, pp. 1-6, 21-30 FOSS Resources, pp. 68-71, 87-97 Investigation 8, Parts 1-3, pp. 248-268; Resources, pp. 49-62; CD, Exploring Dissolving
4. Measure characteristic physical properties such as boiling point, melting point, and solubility, and recognize that the property is independent of the amount of sample.	Mixtures and Solutions Chemical Interactions	Investigation 1, Parts 1 & 4, pp. 8-15, 25-29; Investigation 2, Parts 1 & 3, pp. 8-15, 21-25; Investigation 3, Part 2, pp. 15-20 Investigation 7, Part 2, pp. 211-214; Investigation 8, Part 2, pp. 256-262
B. Chemical Reactions		
SCIENCE STANDARD *By the end of **Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Combine two or more materials and show that the new material may have properties that are different from the original material.	Mixtures and Solutions Chemical Interactions	Investigation 4, Parts 1-3, pp. 8-24; FOSS Science Stories, pp. 23-24 *What a Reaction!*; FOSS Web, Movie: *Physical and Chemical Changes* Investigation 9, Parts 2-4, pp. 288-312; Investigation 10, Parts 1-2, pp. 323-336
A. Structure and Properties of Matter		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Know that all matter is composed of atoms that may join together to form molecules.	Chemical Interactions	Investigation 9, Parts 1-4, pp. 280-312; Investigation 10, Parts -1-2, pp. 323-336; Resources, pp. 63-67
2. Recognize that the phase of matter is determined by the arrangement and motion of atoms and molecules and that the motion of these particles is related to the energy of the system.	Water Planet Chemical Interactions	FOSS Science Resources, pp. 28-30, 33-34 Investigation 7, Parts 1-5; Resources, pp. 32-37, 42-48; CD, Particles in Solid, Liquid and Gas
3. Know that there are groups of elements that have similar properties, including highly reactive metals, less reactive metals, highly reactive non-metals, and some almost completely non-reactive gases.	Chemical Interactions	Investigation 2, Part 1, pp. 70-74; Resources, pp. 4-6, 90-91
4. Recognize that a mixture often can be separated into the original substances using one or more of	Mixtures and Solutions	Investigation 1, Parts 1, 2,& 4, pp. 8-20, 25-29; FOSS Science Stories, pp. 1-6 *Mixtures and Solutions*; Investigation 4, Part 2, pp. 16-

their characteristic physical properties.	Chemical Interactions	19 Investigation 8, Part 1, pp. 248-255
B. Chemical Reactions		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Show how substances can chemically react with each other to form new substances having properties different from those of the original substances.	Mixtures and Solutions Chemical Interactions	Investigation 4, Parts 1-3, pp. 8-24; FOSS Science Stories, pp. 23-24 *What a Reaction!*; FOSS Web, Movie: *Physical and Chemical Changes* Investigation 9, Parts 1-4, pp. 280-312; Investigation 10, Parts 1-2, pp. 323-336; Resources, pp. 63-67
2. Show that in most chemical reactions, energy is transferred into or out of a system.	Mixtures and Solutions Chemical Interactions	FOSS Science Stories, pp. 23-24 W*hat a Reaction* Resources, pp. 65-66, 69-71
3. Demonstrate that regardless how substances within a simple closed system interact, the total mass of the system remains the same.	Mixtures and Solutions Chemical Interactions	Investigation 4, Part 3, pp. 20-24 FOSS Science Stories, pp. 23-24 *What a Reaction* The following references provide the opportunity to address this standard. Investigation 9, Parts 2-4, pp. 288-312; Investigation 10, Parts 1-2, pp. 323-336; Resources Pages 63-67, 71
4. Illustrate how atoms are rearranged when substances react, but that the total number of atoms and the total mass of the products remain the same as the original substances.	Chemical Interactions	Investigation 9, Part 2, pp. 288-297; Resources, pp. 63-67; Video: Atoms and Molecules

STANDARD 5.7 (PHYSICS)
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF NATURAL LAWS AS THEY APPLY TO MOTION, FORCES, AND ENERGY TRANSFORMATIONS.

A. Motions and Forces		
SCIENCE STANDARD *By the end of **Grade 6,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that an object at rest will remain at rest and an object moving in a straight line at a steady speed will continue to move in a straight line at a steady speed unless a net (unbalanced) force acts on it.	Levers and Pulleys Models and Designs Force and Motion	Investigation 1, Part 1, pp. 8-17; Investigation 3, Parts 1 and 2, pp. 8-20; FOSS Science Stories, pp. 1-4 *Simple Machines* Investigation 4, Parts 1 and 2, pp. 8-15 Investigation 6, Parts 1-4, pp. 218-251; Investigation 8, Parts 1-2, pp. 284-301; Resources, pp. 50-52, 70-74
2. Recognize that motion can be retarded by forces such as friction and air resistance.	Levers and Pulleys Force and Motion	FOSS Science Stories, pp. 26-27 *The Screw* Investigation 6, Part 2, pp. 229-235
3. Recognize that everything on or near the earth is pulled toward the earth's center by gravitational force.	Water Planet	Investigation 1, Part 2, pp. 59-66 ; FOSS Science Resources, pp. 16-17

	Planetary Science Force and Motion	Resources, p. 70 Investigation 7, Parts 1-3, pp. 256-272; Resources, pp. 62-69
B. Energy Transformations		
SCIENCE STANDARD *By the end of **Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that heat flows through materials or across space from warmer objects to cooler ones.	Water Planet Solar Energy Weather and Water	Investigation 3, Part 2, pp. 136-144; FOSS Science Resources, pp. 42-51 Investigation 3, Parts 1 and 2, pp. 8-23; Investigation 4, Parts 1-3, pp. 8-28; FOSS Science Stories*, pp. 22-24 The Sun and the Weather; pp. 29-31 Solar Technology; pp. 32-33 Solar Cookers in Third- World Countries; pp. 38-39 Solar Power in Homes; Solar Power From the Wind;* Investigation 4, Parts 1 & 2, pp. 121-139; Resources, pp. 20-26 *Thermometer, A Device to Measure Temperature; Heating the Atmosphere.* CD-ROM: *Matter and Energy; Heat and Energy; Thermometers;* Video: *Conduction Through Metals*
2. Show that vibrations in materials can generate waves that can transfer energy from one place to another.	Variables Planetary Science Human Brain and Senses	FOSS Science Stories, pp. 25-27 *Chuck Yeager: Faster than the Speed of Sound* Resources, p. 99 *CD How the Ear Works*
3. Design an electric circuit to investigate the behavior of a system.	Electronics	Investigation 1, Parts 1-5, pp. 55-79; Resources, pp. 1-5, 9-11;

A. Motions and Forces		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Use quantative data to show that when more than one force acts on an object at the same time, the forces can reinforce or cancel each other producing a new (unbalanced) force that will change speed and/or direction of the object.	Force and Motion	Investigation 6, Parts 1-4, pp. 218-251; Investigation 8, Part 1, pp. 284-293
2. Recognize that every object exerts a gravitational force on every other object, and that the force depends on how much mass the objects have and how far apart they are.	Force and Motion	Investigation 7, Parts 1-3, pp. 256-272; Resources, pp. 62-69
B. Energy Transformations		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Recognize that the sun is a major source of the Earth's energy and that solar energy includes visible, infrared and ultraviolet radiation.	Solar Energy Water Planet	FOSS Science Stories, pp. 12-15 *The Effects of the Sun;* FOSS Science Resources, pp. 42-51

2. Describe the nature of various forms of energy, including heat, light, sound, chemical, mechanical, and electrical and trace energy transformations from one form to another.	Solar Energy Levers and Pulleys Electronics	Investigation 3, Parts 1, 2, pp. 8-23; FOSS Science Stories, pp. 29-31 *Solar Technology*; FOSS Web Activity; *Solar Road Race* Investigation 4, Parts 1& 2, pp. 8-20; FOSS Science Stories, pp. 1-4 *Simple Machines;* Investigation 1, Parts 1-3, pp. 55-70; Resources,, pp. 12-14 CD, *Tech Manual: Static Electricity*
3. Describe how heat can be conducted through materials or transferred across space by radiation and know that if the material is a fluid, convection currents may aid the transfer of heat.	Solar Energy Water Planet Weather and Water	Investigation 3, Parts 1 and 2, pp. 8-23; Investigation 4, Parts 1-3, pp. 8-28; FOSS Science Stories, pp. 22-25 *The Sun and the Weather; Solar Technology; pp. 32-33 Solar Cookers in Third- World Countries; pp. 35-39 Solar Power in Homes; Solar Power From the Wind;* Investigation 3, Part 2, pp. 136-144; FOSS Science Resources, pp. 42-51 Investigation 4, Parts 1 & 2, pp. 121-139; Resources, pp. 20-26 *Thermometer, A Device to Measure Tempera- ture; Heating the Atmosphere.* CD-ROM: *Matter and Energy; Heat and Energy; Thermometers;* Video: *Conduction Through Metals*
4. Show that light is reflected, refracted, or absorbed when it interacts with matter and that colors may appear as a result of this interaction.	This topic is covered in the grade 4 module Ideas and Inventions	

STANDARD 5.8 (EARTH SCIENCE)
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, DYNAMICS, AND GEOPHYSICAL SYSTEMS OF THE EARTH.

A. Earth's Properties and Materials ***Reinforce indicators from previous grade level.***		
B. Atmosphere and Water		
SCIENCE STANDARD *By the end **of Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe the composition, circulation, and distribution of the world's oceans, estuaries, and marine environments.	Environments Water Planet Populations and Ecosystems Weather and Water	Investigation 5, Parts 1 & 2, pp. 8-18 Investigation 4, Part 4, pp. 212-216; FOSS Science Resources, p. 63 Investigation 8, Part 1, pp. 228-233 Investigation 7, Parts 1 & 2, pp. 232-243; Resources, p. 45; CD-ROM: *Water Cycle*
2. Describe and illustrate the water cycle.	Environments Water Planet	FOSS Web, Pictures: Oxygen Cycle, Nitrogen Cycle, Carbon Cycle, Water Cycle Investigation 4, Part 1, pp. 184-197; FOSS

		Science Resources, pp.67-70
	Diversity of Life	Investigation 6, Part 3, pp. 198-202
	Weather and Water	Investigation 7, Parts 1 & 2, pp. 232-243; Resources, pp. 45-47;CD-ROM: *Cycles: Water Cycle*
C. Processes that Shape the Earth		
SCIENCE STANDARD *By the end of **Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Summarize the process involved in the rock cycle and describe the characteristics of the rocks involve.	Earth History	Investigation 8, Parts 1-3, pp. 254-270; Resources, pp. 93-97; CD-ROM: *Geology* Lab: *Rock Database; Formation of Metamorphic, Sedimentary, and Igneous Rocks*
D. How We Study the Earth		
SCIENCE STANDARD *By the end of **Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Utilize various tools such as map projections and topographical maps to interpret features of Earth's surface.	Landforms	Investigation 1, Parts 1 & 2, pp. 8-19; Investigation 4, Parts 1-3, pp. 8-24; FOSS Science Stories, pp. 1-8 *Maps and How They are Made*; pp. 33-34*Topographic Maps;*
A. Earth's Properties and Materials ***Reinforce indicators from previous grade level.***		
B. Atmosphere and Water		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe conditions in the atmosphere that lead to weather systems and how these systems are represented on weather maps.	Water Planet	Investigation 4, Parts 2-3, pp. 198-211; FOSS Science Resources, pp. 71-88
	Weather and Water	Investigation 1, Parts 1-2, pp. 43-53; Resources, pp. 3-5; Video: *Wonders of Weather (Parts 2 & 4)*; CD-ROM: *Spreadsheet*; Investigation 6, Parts 1-5, pp. 190-220; Resources, pp.34-43, 79-81; CD-ROM: *Atmospheric Data*; Investigation 8, Parts 1-4, pp. 258-279; Resources, pp. 48-62; CD-ROM: *Climate Factors*
C. Processes that Shape the Earth		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Explain how Earth's landforms and materials are created through constructive and destructive processes.	Landforms	Investigation 2, Parts 1-2, pp. 8-22; FOSS Science Stories, pp. 15-21 *Rivers and Controlling the Flow; pp. 30-32 The Story of Mt. Shasta; pp. 22-29 Shapes of the Earth;* FOSS Web Movie: *Grand Canyon Rapids;*
	Earth History	Investigation 4, Parts 1-6, pp. 127-162; Resources, pp. 64-67, 100-105; CD-ROM: *Geology Lab "Earth Processes, Sandstone, & Shale;*
2.Show how successive layers of sedimentary rock and the fossils contained in them can be used to confirm the age, history, changing	Earth History	Investigation 4, Part 5, pp. 150-155; Investigation 3, Parts 2 & 3, pp. 96-107; Investigation 6, Part 4, pp. 220-224; Investigation 7, Part 1, pp. 234-242;

life forms, and geology of Earth.		Resources, pp. 76-78 & p. 87
D. How We Study the Earth		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Utilize data gathering from emerging technologies (i.e. geographic information systems (GIS) and global positioning systems (GPS) to create representations and describe processes of change on the Earth's surface.		
Explain how technology designed to investigate features of the Earth's surface impacts how scientists study the Earth.	Water Planet Earth History	FOSS Science Resources, pp. 82-83 Resources, pp. 60-63, 98-99

STANDARD 5.9 (ASTRONOMY & SPACE SCIENCE)
ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE ORIGIN, EVOLUTION, AND STRUCTURE OF THE UNIVERSE

A. Earth, Moon, Sun System		
SCIENCE STANDARD *By the end of **Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Explain how the motions of the Earth, sun, and moon, define units of time including: •days •months •years	Planetary Science	Investigation 3, Parts 1 & 2, pp. 89-98; CD-ROM: *Day /Night Simulation;*
2. Recognize that changes in the Earth's position relative to the sun produces differing amounts of daylight seasonally.	Weather and Water	Investigation 3, Part 2, pp. 97-102; CD-ROM: *Cycles (Seasons);* Resources, pp. 17-19;
B. Solar System		
SCIENCE STANDARD *By the end of **Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Using models, demonstrate an understanding of the scale of the solar system that shows distance and size relationships among the sun and planets.	Water Planet Planetary Science	Investigation 1, Part 1, pp. 50-58; FOSS Science Resources, pp. 1-13 Investigation 10, Part 1, pp. 312-317**;** Resources, pp. 35, 84-89; CD-ROM: *Solar System*
2. Recognize that the sun's gravitational pull holds the planets in their orbits and that the planets' gravitational pull holds their moons in their orbits.	Water Planet Planetary Science	Investigation 1, Part 2, pp. 59-66; FOSS Science Resources, pp. 16-17 Resources, pp.70, 84-85
C. Stars		

SCIENCE STANDARD *By the end of **Grade 6,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Observe and record short-term and long-term changes in the positions of the constellations in the night sky.	Planetary Science	Investigation 10, Parts 1 & 2, pp. 312-322
2. Observe that the planets appear to change their position against the background of stars.	Planetary Science	Investigation 10, Parts 1 & 2, pp. 312-322

D. Galaxies and Universe

Reinforce indicators from previous grade level.

A. Earth, Moon, Sun System

SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Investigate the Earth, moon, and sun as a system and explain how the motion of these bodies results in the phases of the moon and eclipses.	Planetary Science	Investigation 9; Parts 1-3, pp. 283-298; CD-ROM: *Lunar Calendar; Day/Night Simulations; Phases of the Moon*
2. Explain how the regular and predictable motions of the Earth and moon produce tides.		
3. Explain how the tilt, rotation, and orbital pattern of the Earth relative to the sun produces seasons and weather patterns.	Water Planet Weather and Water	FOSS Science Resources, p. 45 Investigation 3, Part 2, pp. 97-102; CD-ROM: *Cycles (Seasons);* Resources, p.17; Investigation 9, Parts 1 & 2, pp. 296-310; CD-ROM: *Climate Factors (Weather and Landforms);* Video: *Solar Balloon*

B. Solar System

SCIENCE STANDARD *By the end of **Grade 8,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe the physical characteristics of the planets and other objects within the solar system and compare Earth to the rest of the planets.	Water Planet Planetary Science	Investigation 1, Part 1, pp. 50-58; FOSS Science Resources, pp. 1-13 Investigation 10, Parts 2 & 3, pp. 318-324; CD-ROM: *Digitizer; Planet Images;* Resources, pp. 84-90

C. Stars

SCIENCE STANDARD *By the end of **Grade 8,** the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Understand that the sun is a star and that it shares characteristics with other stars.	Planetary Science	Investigation 10, Part 1, pp. 312-317

D. Galaxies and Universe

SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Know that the universe consists of many billions of galaxies, each including billions of stars.		

STANDARD 5.10 (ENVIRONMENTAL STUDIES)
ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE ENVIRONMENT AS A SYSTEM OF INTERDEPENDENT COMPONENTSAFFECTED BY HUMAN ACTIIVTY AND NATURAL PHENOMENA.

A. Natural Systems and Interactions		
SCIENCE STANDARD *By the end of **Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Explain how organisms interact with other components of an ecosystem.	Environments	Investigation 2, Parts 2-3, pp. 16-25; Investigation 3, Parts 1-3, pp. 8-22; Investigation 5, Parts 1-3, pp. 8-21; Investigation 6, Parts 1-2, pp. 8-17; FOSS Science Stories:, *pp. 3-4, 11, 15-17, 22, 31-34, 38-45, 53-55*
	Populations and Ecosystems	Investigation 4 Part 2, pp. 122-129; Investigation 5, Parts 2, 4, pp. 151-155, 161-169; FOSS Resources, *pp. 17-21*
2. Describe the natural processes that occur over time in places where direct human impact is minimal.	Landforms	Investigation 2, Parts 1-2, pp. 8-22; Investigation 3, Parts 1-2, pp. 8-19; FOSS Science Stories, *pp. 15-19, 22-29*
	Environments	FOSS Science Stories, *pp. 49-51*
	Earth History	Investigation 4, Part 4, pp. 147-149; FOSS Resources, *pp. 73-77, 93-97, 100-105*
B. Human Interactions and Impact		
SCIENCE STANDARD *By the end of **Grade 6**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Describe the effect of human activities on various ecosystems.	Landforms	FOSS Science Stories, *pp. 13-14*
	Environments	FOSS Science Stories, *pp. 33, 35-37, 43-46, 49-52*
	Populations and Ecosystems	Investigation 7, pp. 210-215; FOSS Resources, *pp. 31-41*
2. Evaluate the impact of personal activities on the local environment.	Landforms	FOSS Science Stories, *pp. 43-44*
	Environments	FOSS Science Stories:, *p. 35*
	Weather and Water	FOSS Resources, *pp. 63-66*

A. Natural Systems and Interactions		
SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Investigate the impact of catastrophic events such as forest fires, floods, and hurricanes on the environment of New Jersey	Water Planet	Investigation 4, Part 2, pp. 198-203; FOSS Science Resources, *pp. 71-79*
	Weather and Water	FOSS Resources, *pp. 67-76* (This is a local objective but the above references provide background information).
B. Human Interactions and Impact		

SCIENCE STANDARD *By the end of **Grade 8**, the student will:*	*FOSS* *MODULE*	*INVESTIGATION* *PART*
1. Compare and contrast practices that affect the use and management of natural resources.	Earth History	FOSS Resources, *pp. 64-67*
	Populations and Ecosystems	Investigation 7, pp. 210-215; FOSS Resources, *pp. 31-41*
	Weather and Water	FOSS Resources, *pp. 63-66*