

Califon School
Science Curriculum
Grades K – 8

Philosophy

Living in today's increasingly technological society, we feel it is important for students to apply their natural curiosity about life by questioning, observing, investigating, analyzing, and evaluating the world around them. Using an inquiry based approach, the Califon School Science Curriculum will enable students to meet these challenges of learning.

Our approach will incorporate the Inquiry Instructional Learning Model endorsed by the National Science Education Standards Addendum on Inquiry (National Academy Press, 2000). It will include the following sequence of experiences: Engage, Explore, Explain, Extend, and Evaluate.

District Goals

The goal of the Science Curriculum of the Califon School District is to comply with and enhance the New Jersey Core Curriculum Standards. Following the Standards provides the students with a thorough framework for scientific knowledge.

The NJ Core Curriculum Content Standards and Strands are as follows:

- 5.1 **Scientific Process** All students will develop problem solving, decision-making and inquiry skills, reflected by for forming usable questions and hypotheses, planning experiments, conducting systematic observations, interpreting and analyzing data, drawing conclusions, and communicating results.
 - A. Habits of Mind
 - B. Inquiry and Problem Solving
 - C. Safety

- 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 Technology.
 - A. Cultural Contributions
 - B. Historical Perspectives

- 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
 - B. Geometry and Measurement
 - C. Patterns and Algebra
 - D. Data Analysis and Probability

- 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

- B. Nature of Technology
- C. Technological Design

5.5 Life Science All students will develop 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
- B. Diversity and Biological Evolution
- C. Reproduction and Heredity

5.6 Physical Science – Chemistry All students will gain an understanding of the structure and behavior of matter.

- A. Structure and Properties of Matter
- B. Chemical Reactions

5.7 Physical Science – Physics All students will gain an understanding of natural laws as they apply to motion, forces, and energy transformations.

- A. Motion and Forces
- B. Energy Transformations

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
- B. Atmosphere and Weather
- C. Processes that Shape the Earth
- D. How We Study the Earth

5.9 Astronomy and Space Science All students will gain an understanding of the origin, evolution, and structure of the universe.

- A. Earth, Moon, Sun System
- B. Solar System
- C. Stars
- D. Galaxies and Universe

5.10 Environmental Studies All students will develop an understanding of the environment as a system of

interdependent components affected by human activity and natural phenomena.

A. Natural Systems and Interactions

B. Human Interactions and Impact

Methodology

The Califon School Science Curriculum is committed to the balanced instruction of Life, Physical, and Earth sciences. Science is taught using a hands-on inquiry and discovery process. Aspects of this approach include the following:

- A. **Scientific Literacy**, which uses the scientific method to explore the relationships among science, mathematics, and technology.
- B. **Basic Literacy of Reading and Writing**, which uses Language proficiently in conventional and technology-based media.
- C. **Visual Literacy**, which includes deciphering, interpreting, and producing images, graphics, icons, charts, graphs, and videos.
- D. **Math Literacy**, which uses math skills as part of collecting and analyzing data.
- E. **Technology Literacy**, which includes using digital and analog tools, including computers and the Internet.
- F. **Information Literacy**, which uses finding, evaluating, and using information appropriately.

In order to accomplish this goal we will be using the New Jersey edition of Macmillan McGraw Hill Science 2005 for grades 1 - 6.

Kindergarten will be using Letter People Curriculum (Abrams and Company, 1997).

Grade 7 will be using Science Insights – Exploring Living Things (Addison – Wesley, 1994).

Grade 8 will be using Science Insights – Exploring Matter and Energy (Addison – Wesley, 1994).

Additionally, Grades K – 5 will use MARE (Marine Activities and Research Education, Rutgers University).

In order to further enhance learning, teachers have developed a variety of supplemental units and activities at various levels.

Kindergarten Curriculum

Possible topics to be presented:

- I. Life Science
 - A. Plants
 - 1. Parts of Plants
 - 2. What Plants Need
 - 3. How Plants Grow
 - 4. Look at Leaves and Flowers
 - 5. Plants We Use
 - B. Animals
 - 1. Animals Are Everywhere
 - 2. Bugs and More Bugs
 - 3. Reptiles
 - 4. What Animals Need
 - 5. Up Above and Down Under
 - 6. Staying Safe
 - 7. Grow and Change
 - 8. People and Animals
- II. Earth Science
 - A. Our Earth, Our Home
 - 1. Soil Under Your Feet
 - 2. Rocks
 - 3. Land High and Low
 - 4. Water All Around
 - 5. Recycle, Reuse
 - B. Weather and Sky
 - 1. Exploring Weather
 - 2. Look at Clouds
 - 3. The Seasons
 - 4. Sun and Shadows
 - 5. Moon and Stars
- III. Physical Science
 - A. Exploring Matter
 - 1. Paper and Cloth
 - 2. Wood and Metal
 - 3. Working with Clay
 - 4. Investigate Water
 - B. Moving Right Along
 - 1. Wheels
 - 2. How Things Move
 - 3. Sounds All Around
 - 4. Magnets

Addition of the MARE unit may alter the number of units covered on this grade level.

First Grade

Possible topics to be presented:

- I. Life Science
 - A. Plants Are Living Things
 - 1. Your Senses
 - 2. Living and Nonliving Things
 - 3. Plants Are Living Things
 - 4. Plants Have Parts
 - 5. Roots
 - 6. Stems and Leaves
 - 7. Seeds
 - 8. Plants Grow and Change
 - B. Animals Are Living Things
 - 1. Animals Are Living Things
 - 2. Mammals
 - 3. More Animal Groups
 - 4. Grow and Change
 - 5. Getting Food
 - 6. Where Animals Live
 - 7. Staying Safe
- II. Earth Science
 - A. The Sky and Weather
 - 1. The Sun
 - 2. The Moon and Stars
 - 3. The Planets
 - 4. Weather
 - 5. Weather Changes
 - 6. Spring and Summer
 - 7. Fall and Winter
 - B. Caring for Earth
 - 1. Rocks and Minerals
 - 2. Soil
 - 3. Water
 - 4. Air
 - 5. Living Things Are Resources
 - 6. Pollution
 - 7. Caring for Earth's Resources
- III. Physical Science
 - A. Matter, Matter Everywhere
 - 1. Properties of Matter
 - 2. Solids
 - 3. Liquids
 - 4. Gases
 - 5. Solids in Mixtures

6. Solids and Liquids in Water
7. How Matter Changes
- B. On the Move
 1. Things Move
 2. Measure and Movement
 3. The Ways Things Move
 4. Things Magnets Move
 5. A Magnet's Poles
 6. Things Magnets Pull Through
 7. Moving Things Make Sound
 8. Explore Different Sounds

Addition of the MARE unit may alter the number of units covered on this grade level.

Second Grade

Possible topics to be presented:

I. Life Science

A. Plants and Animals

1. Plants Are Living Things
2. Parts of Plants
3. Plants Make New Plants
4. Everyone Needs Plants
5. All Kinds of Animals
6. Animals Meet Their Needs
7. Animals Grow and Change

B. Homes for Plants and Animals

1. Where Plants and Animals Live
2. Life in a Woodland Forest
3. Life in a Fain Forest
4. Life in a Desert
5. Life in the Artic
6. Life in a Fresh Water Habitat
7. Life in a Salt Water Habitat
8. Caring For Earth's Habitats

II. Earth Science

A. Changes on Earth

1. Water and Our Weather
2. Earth Can Change Slowly
3. Earth Can Change Quickly
4. Clues in Rocks
5. Putting the Clues Together
6. Life on Earth Changes

D. The Sun and Its Family

1. Day and Night
2. Seasons
3. The Moon
4. The Moon Changes
5. Stars
6. Planets

III. Physical Science

A. Matter and Energy

1. Matter All Around
2. Three States of Matter
3. Changing Matter
4. Heat
5. Light
5. Sound

B. Watch It Move

1. Pushes and Pulls
2. Forces and Changes
3. Levers
4. Ramps
5. All About Magnets
6. Everyday Magnets

Addition of the MARE unit may alter the number of units covered on this grade level.

Third Grade

Possible topics to be presented:

I. Life Science

A. Looking at Plants and Animals

1. How Living Things Are Alike
2. The Needs of Plants
3. The Life Cycle of a Plant
4. The Needs of Animals
5. How Animals Grow
6. Parts of Animals
7. Kinds of Animals

B. Where Plants and Animals Live

1. Ecosystems
2. Food Chains and Food Webs
3. Roles for Plants and Animals
4. Competition Among Living Things
5. Adaptations for Survival
6. Changing Ecosystems

II. Earth Science

A. Our Earth

1. Minerals and Rocks
2. Kinds of Soils
3. Fossils and Fuels
4. Water in Sea, Land, and Sky
5. Saving Our Resources
6. Landforms
7. Slow Changes on Land
8. Fast Changes on Land

B. Cycles on Earth and in Space

1. The Weather
2. The Water Cycle
3. Describing Weather
4. How Earth Moves
5. Phases of the Moon
6. The Sun and Its Planets

III. Physical Science

A. Forces and Motion

1. Motion and Speed
2. Forces
3. Changes in Motion
4. Doing Work
5. Levers and Pulleys
6. More Simple Machines

B. Looking at Matter and Energy

1. Properties of Matter
2. Comparing Solids, Liquids, and Gases
3. Building Blocks of Matter
4. How Heat Travels
5. How Light Travels
6. Properties of Sound
7. Paths for Electricity

Addition of the MARE unit may alter the number of units covered on this grade level.

Fourth Grade

Possible topics to be presented:

I. Life Science

A. The World of Living Things

1. The Cells in Living Things
2. Classifying Organisms
3. Organisms of the Past
4. Organisms and Where They Live
5. Changes in Ecosystems
6. Plant Parts
7. Plant Growth and Reproduction

B. Animals as Living Things

1. Animals Characteristics
2. Animals Without Backbones
3. Animals With Backbones
4. Organ Systems
5. Development and Reproduction
6. Animal Survival

II. Earth Science

A. Earth and Beyond

1. What You Can Learn From Rocks
2. Clues From Fossils
3. Shaping Earth's Surface
4. The Story of Soil
5. Inside Earth
6. Earth, the Moon, and the Sun

B. Water and Weather

1. Water, Water Everywhere
2. Follow the Water (water cycle)
3. Motion in the Oceans
4. Go with the Flow (ground water)
5. Water Please! (conservation)
6. Air, Wind, and the Atmosphere
7. Weather and Climate

III. Physical Science

A. Matter

1. Matter (properties, states)
2. Measuring Matter
3. What Matter Is Made Of
4. Physical Changes
5. Chemical Changes

B. Energy

1. Motion, Forces, and Energy

2. Energy and Tools
3. Heat
4. Light
5. Sound
6. Static Electricity
7. Current Electricity
8. Electricity and Magnetism

Addition of the MARE unit may alter the number of units covered on this grade level.

Fifth Grade

Possible topics to be presented:

I. Life Science

A. Characteristics of Living Things

1. The Basic Unit of Life
2. The Kingdoms of Life
3. Roots, Stems, and Leaves
4. Plant Responses and Adaptations
5. Plants Without Seeds
6. Plants With Seeds
7. Flowers and Seeds
8. Animal Traits
9. Animal Adaptations

B. Living Things and Their Environments

1. Interactions in an Ecosystem
2. Interactions Among Living Things
3. How Populations Survive
4. Cycles of Life
5. Biomes
6. How Ecosystems Change

II. Earth Science

A. Earth and Its Resources

1. Earth's Changing Crust
2. Landforms
3. Minerals of Earth's Crust
4. Earth's Rocks and Soil
5. Earth's Atmosphere
6. Earth's Fresh Water
7. Earth's Oceans
8. Energy Resources

B. Astronomy, Weather, and Climate

1. Earth and Its Neighbors
2. The Solar System
3. Atmosphere and Air Temperature
4. Water Vapor and Humidity
5. Clouds and Precipitation
6. Air Pressure and Wind
7. Air Masses and Fronts
8. Severe Storms
9. Climate

III. Physical Science

A. Properties of Matter and Energy

1. Physical Properties
2. Elements and Compounds

3. Solids, Liquids, and Gases
 4. Mixtures and Solutions
 5. Chemical Changes
 6. Acids and Bases
 7. Matter and Energy
- B. Motion and Energy
1. Newton's First Law
 2. Newton's Second and Third Laws
 3. Newton's Law of Gravity
 4. Sound Waves
 5. Pitch and Loudness
 6. Reflection and Absorption
 7. Light and Mirrors
 8. Light and Lenses
 9. Light and Color
 10. Invisible Light

Addition of the MARE unit may alter the number of units covered on this grade level.

Sixth Grade

Possible topics to be presented:

- I. Exploring the Sciences
 - A. Studying Skills
 - 1. Science Skills and Methods
 - 2. Measuring with Scientific Units
 - 3. Graphing
 - 4. Studying the Earth
 - B. Topography and Geography
 - 1. Earth's Surface
 - 2. Mapping the Earth
 - 3. Topographic Maps
 - C. Structure of the Earth
 - 1. Layers of the Earth
 - 2. Studying the Earth's Interior
- II. The Dynamic Earth
 - A. Time and Change
 - 1. Earth's History
 - 2. Geologic Time Scale
 - B. Plate Tectonics
 - 1. Drifting Continents
 - 2. Theory of Plate Tectonics
 - 3. Physics of Plate Movement
 - C. Movement of the Crust
 - 1. Folding and Faulting
 - 2. Mountains and Plateaus
 - D. Earthquakes and Volcanoes
 - 1. Earthquakes
 - 2. Earthquake Evidence
 - 3. Volcanoes
- III. Composition of the Earth
 - A. Earth Chemistry
 - 1. Structure of Matter
 - 2. Energy and Changes in Matter
 - 3. The Earth's Elements
 - B. Minerals
 - 1. Mineral Formation and Structure
 - 2. Mineral Identification
 - 3. Uses of Minerals
 - C. Rocks and the Rock Cycle
 - 1. Rocks
 - 2. Igneous Rocks
 - 3. Sedimentary Rocks
 - 4. Sedimentary Rocks

- 5. Metamorphic Rocks
- IV. Changes on the Earth's Surface
 - A. Weathering and Soils
 - 1. Weathering
 - 2. Soils
 - 3. World Soil Types
 - B. Forces of Erosion
 - 1. Gravity and Erosion
 - 2. Water Erosion
 - 3. Ice Erosion
 - 4. Wind Erosion
 - C. History of Life on Earth
 - 1. Evolution of Life
 - 2. The Fossil Record
 - 3. Interpreting Fossils
 - 4. Life Through Geologic Time
- V. Earth's Waters
 - A. Fresh Water
 - 1. Water and Its Properties
 - 2. Surface Water
 - 3. Water Beneath the Surface
 - B. Ocean Water
 - 1. Properties of Ocean Water
 - 2. Ocean Currents
 - 3. Ocean Waves
 - 4. Tides
 - C. Ocean Basins
 - 1. Ocean Exploration
 - 2. Ocean-Floor Topography
 - 3. Life Zones in the Oceans
- VI. Earth's Atmosphere
 - A. The Atmosphere
 - 1. A Blanket of Air
 - 2. Structure of the Atmosphere
 - 3. The Changing Atmosphere
 - B. Water in the Atmosphere
 - 1. Humidity
 - 2. Clouds
 - 3. Precipitation
 - C. Weather
 - 1. Air in Motion
 - 2. Storms
 - 3. Weather Prediction
 - D. Climate
 - 1. Causes of Climate
 - 2. Climate Classification

- 3. Climate Change
- VII. Energy and Environment
 - A. Mineral and Energy Resources
 - 1. Mineral Resources
 - 2. Fossil-Fuel Resources
 - 3. Alternative Energy Resources
 - B. Humans and the Environment
 - 1. Human Ecology
 - 2. Human Impact on the Environment
 - 3. Environmental Solutions
- VIII. Astronomy
 - A. Earth and the Moon
 - 1. Earth in Space
 - 2. Earth's Moon
 - 3. Earth-Moon System
 - B. The Solar System
 - 1. The Sun
 - 2. Planets in the Solar System
 - 3. Asteroids, Meteoroids, and Comets
 - C. Stars and Galaxies
 - 1. The Study of Stars
 - 2. Characteristics of Stars
 - 3. Life Cycle of Stars
 - 4. Galaxies and Star Groups

Addition of the MARE unit may alter the number of units covered on this grade level.

Seventh Grade

Possible topics to be presented:

- I. Exploring the Sciences
 - A. Studying Science
 - 1. Science Skills and Methods
 - 2. Measuring with Scientific Units
 - 3. Graphing
 - 4. Microscopes and Lasers
 - B. The Earth and Living Things
 - 1. The Living Planet
 - 2. Characteristics of Living Things
 - 3. Needs of Living Things
 - C. The Chemistry of Living Things
 - 1. Matter
 - 2. Changes in Matter
 - 3. Molecules of Life
- II. Cells and Heredity
 - A. Cells and Living Things
 - 1. The Cell Theory
 - 2. Parts of a Cell
 - 3. Organization of Living Things
 - B. Cell Processes
 - 1. Movement of Substances
 - 2. Energy Processes
 - 3. Cell Growth and Division
 - C. Heredity
 - 1. Basic Principles of Heredity
 - 2. Chromosomes and Inheritance
 - 3. DNA and the Genetic Code
 - 4. Applied Genetics
- III. Evolution and Classification
 - A. Diversity of Living Things
 - 1. Diversity and Adaptation
 - 2. Variation and Reproduction
 - 3. Natural Selection
 - B. History of Life
 - 1. Geologic Time
 - 2. The Fossil Record
 - 3. Human Evolution
 - C. Classifying Living Things
 - 1. Classification
 - 2. The Five Kingdoms
 - 3. Identifying Organisms

- IV. Simple Organisms
 - A. Viruses and Monerans
 - 1. Viruses
 - 2. Monerans
 - B. Protists and Fungi
 - 1. Diversity of Protistsss
 - 2. Protozoa
 - 3. Algae
 - 4. Fungi
- V. Plant Live
 - A. A World of Plants
 - 1. Plant Origins
 - 2. Chemistry in Plants
 - B. Nonflowering Plants
 - 1. Characteristics of Nonflowering Plants
 - 2. Bryophytes
 - 3. Nonflowering Vascular Plants
 - C. Flowering Plants
 - 1. Characteristics of Flowering Plants
 - 2. Vascular Plant Systems
 - 3. Reproduction of Flowering Plants
 - 4. Plant Growth
- VI. Animal Life
 - A. Invertebrates I
 - 1. The Animal Kingdom
 - 2. Sponges
 - 3. Cnidarians
 - 4. Worms
 - B. Invertebrates II
 - 1. Mollusks
 - 2. Arthropods
 - 3. Insects
 - 4. Echinoderms
 - C. Fishes, Amphibians, and Reptiles
 - 1. Common Traits of Vertebrates
 - 2. Fishes
 - 3. Amphibians
 - 4. Reptiles
 - D. Birds and Mammals
 - 1. Birds
 - 2. Mammals
 - 3. Diversity of Mammals
- VII. Human Life
 - A. Support, Movement, and Covering
 - 1. Skeletal System
 - 2. Muscular System

- 3. The Skin
- B. Supply and Transport
 - 1. Digestive System
 - 2. Circulatory System
 - 3. Respiratory System
 - 4. Excretory System
- C. Control and Sensing
 - 1. Nervous System
 - 2. The Senses
 - 2. Endocrine System
- D. Reproduction and Life Stages
 - 1. Human Reproductive Systems
 - 2. Fertilization, Pregnancy, and Birth
 - 3. Human Life Stages
- E. Nutrition, Health, and Wellness
 - 1. Nutrients
 - 2. Exercise and Rest
 - 3. Drugs and Substance Abuse
- F. Disease and the Immune System
 - 1. Infectious Disease
 - 2. The Body's Natural Defenses
 - 3. Body Disorders
 - 4. Medicines That Fight Disease
- VIII. Ecology
 - A. Organisms and Their Environment
 - 1. Ecosystems and Communities
 - 2. Food and Energy
 - 3. Cycles in an Ecosystem
 - 4. Changes in Ecosystems
 - B. Interactions Among Organisms
 - 1. Changes in Populations
 - 2. Relationships Among Populations
 - 3. Animal Behavior
 - C. Climate and Biomes
 - 1. Climate
 - 2. Land Biomes
 - 3. Water Biomes
 - D. Humans and the Environment
 - 1. Natural Resources
 - 2. Energy Resources
 - 3. Pollution

Eighth Grade

Possible topics to be presented:

- I. Forces, Motion and Energy
 - A. Studying Science
 - 1. Science Skills and Methods
 - 2. Measuring With Scientific Units
 - 3. Graphing
 - 4. Science Tools and Technology
 - B. Motion and Energy
 - 1. Motion
 - 2. Acceleration
 - 3. Energy of Motion
 - C. Forces and Motion
 - 1. Forces, Motion, and Gravity
 - 2. First Law of Motion
 - 3. Second Law of Motion
 - 4. Third Law of Motion
 - 5. Universal Forces
 - D. Forces in Fluids
 - 1. Fluid Pressure
 - 2. Buoyancy
 - 3. Forces in Moving Fluids
 - E. Work, Machines, and Energy
 - 1. Work and Power
 - 2. Work and Machines
 - 3. Simple and Compound Machines
 - 4. Energy and Its Forms
- II. Particles of Matter
 - A. Properties of Matter
 - 1. Matter
 - 2. Phases of Matter
 - 3. Changes in Matter
 - B. Atoms, Elements, Compounds, and Mixtures
 - 1. Structure of the Atom
 - 2. Elements
 - 3. Compounds
 - 4. Mixtures
 - C. Introduction to the Periodic Table
 - 1. The Modern Periodic Table
 - 2. Metals
 - 3. Nonmetals and Metalloids
- III. Heat
 - A. Heat
 - 1. Heat Energy

- 2. Transfer of Heat
 - 3. Heat and Matter
 - B. Using Heat
 - 1. Heating Technology
 - 2. Cooling Technology
 - 3. Heat Engines
- IV. Electricity and Electromagnetism
 - A. Electricity
 - 1. Electric Charges
 - 2. Static Electricity
 - 3. Electric Current
 - 4. Electric Circuits
 - 5. Electric Power and Safety
 - B. Magnetism
 - 1. Magnets and Magnetism
 - 2. Electricity to Magnetism
 - 3. Magnetism to Electricity
 - C. Electronics
 - 1. Electronic Devices
 - 2. Audio and Video Electronics
 - 3. Computers
- V. Waves, Sound, and Light
 - A. Waves
 - 1. Nature of Waves
 - 2. Wave Properties
 - 3. Wave Interactions
 - B. Sound
 - 1. Wave Model of Sound
 - 2. Properties of Sound
 - 3. Sound-Wave Interactions
 - C. Using Sound
 - 1. How You Hear
 - 2. Sounds You Hear
 - 3. Sound Technology
 - D. Light
 - 1. Nature of Light
 - 2. The Electromagnetic Spectrum
 - E. Using Light
 - 1. Light Sources
 - 2. Vision
 - 3. Reflection and Mirrors
 - 4. Refraction and Lenses
 - 5. Light Technology
- VI. Interactions of Matter
 - A. Chemical Bonding
 - 1. Atoms and Bonding

- 2. Ionic Bonds
- 3. Covalent Bonds
- B. Chemical Reactions
 - 1. Characteristics of Chemical Reactions
 - 2. Chemical Equations
 - 3. Types of Chemical Reactions
 - 4. Energy and Reaction Rate
- C. Solution Chemistry
 - 1. Solutions
 - 2. Suspensions and Colloids
 - 3. Acids, Bases, and Salts
- D. Carbon Compounds and the Chemistry of Life
 - 1. A World of Carbon
 - 2. Food Chemistry
 - 3. Energy in Living Things
- E. Nuclear Chemistry
 - 1. Radioactivity
 - 2. Radioactive Decay
 - 3. Energy from the Nucleus
- VII. Technology and Resources
 - A. Energy Use and Technology
 - 1. Generating and Using Electric Power
 - 2. Alternative Energy Technologies
 - 3. Energy Conservation Decisions
 - B. Chemical Technology
 - 1. Petroleum Fuels
 - 2. Petrochemical Products
 - 3. Materials Science
 - 4. Technology and the Environment

**New Jersey Core Curriculum Content Standards
For Science**

Califon School Grades K - 8

Standard		K	1st grade	2nd grade	3rd grade
5.1 Scientific Processes	A. Habits of Mind		✓	✓	✓
	B. Inquiry and Problem Solving	✓	✓	✓	✓
	C. Safety	✓	✓	✓	✓
5.2 Science and Society	A. Cultural Contributions				
	B. Historical Perspectives				
5.3 Mathematical Applications	A. Numerical Operations				
	B. Geometry and Measurement	✓	✓	✓	✓
5.4 Nature and Process of Technology	A. Science and Technology				
	B. Nature of Technology				
	C. Technological Design				
5.5 Life Science	A. Matter, Energy, and Organization in Living Systems	✓	✓	✓	✓
	B. Diversity and Biological Evolution	✓	✓	✓	✓
	C. Reproduction and Heredity	✓	✓	✓	✓
5.6 Physical Science – Chemistry	A. Structure and Properties of Matter	✓	✓	✓	✓
	B. Chemical Reactions		✓	✓	✓
5.7 Physical Science – Physics	A. Motion and Forces	✓	✓	✓	✓
	B. Energy Transformations		✓	✓	✓
5.8 Earth Science	A. Earth's Properties and Materials		✓	✓	✓
	B. Atmosphere and Weather	✓	✓	✓	✓
	C. Processes that Shape the Earth		✓	✓	✓
	D. How We Study the Earth		✓	✓	✓
5.9 Astronomy and Space Science	A. Earth, Moon, Sun System	✓	✓	✓	✓
	B. Solar System	✓	✓	✓	✓
	C. Stars	✓	✓	✓	
	D. Galaxies and Universe				
5.10 Environmental Studies	A. Natural Systems and Interactions	✓	✓	✓	✓
	B. Human Intersections and Impact	✓	✓	✓	✓

**New Jersey Core Curriculum Content Standards
For Science**

Grades 5-8

Standard		4 th grade	5 th grade	6 th grade	7 th grade
5.1 Scientific Processes	A. Habits of Mind	✓	✓	✓	✓
	B. Inquiry and Problem Solving	✓	✓	✓	✓
	C. Safety	✓	✓	✓	✓
5.2 Science and Society	A. Cultural Contributions	✓	✓		
	B. Historical Perspectives	✓	✓		
5.3 Mathematical Applications	A. Numerical Operations	✓	✓	✓	✓
	B. Geometry and Measurement	✓	✓		✓
5.4 Nature and Process of Technology	A. Science and Technology	✓	✓		
	B. Nature of Technology		✓		
	C. Technological Design		✓		
5.5 Life Science	A. Matter, Energy, and Organization in Living Systems	✓	✓	✓	
	B. Diversity and Biological Evolution	✓	✓	✓	
	C. Reproduction and Heredity	✓	✓	✓	
5.6 Physical Science – Chemistry	A. Structure and Properties of Matter	✓	✓	✓	
	B. Chemical Reactions	✓	✓	✓	
5.7 Physical Science – Physics	A. Motion and Forces		✓		
	B. Energy Transformations		✓		
5.8 Earth Science	A. Earth's Properties and Materials	✓	✓	✓	
	B. Atmosphere and Weather	✓	✓	✓	
	C. Processes that Shape the Earth	✓	✓	✓	
	D. How We Study the Earth	✓	✓	✓	
5.9 Astronomy and Space Science	A. Earth, Moon, Sun System	✓	✓	✓	
	B. Solar System	✓	✓	✓	
	C. Stars	✓		✓	
	D. Galaxies and Universe	✓		✓	
5.10 Environmental Studies	A. Natural Systems and Interactions	✓	✓	✓	✓
	B. Human Intersections and Impact	✓	✓		

New Jersey Core Curriculum Content Standards
For Science

Grades 5-8

Standard		8 th grade			
5.1 Scientific Processes	A. Habits of Mind	✓			
	B. Inquiry and Problem Solving	✓			
	C. Safety	✓			
5.2 Science and Society	A. Cultural Contributions				
	B. Historical Perspectives				
5.3 Mathematical Applications	A. Numerical Operations	✓			
	B. Geometry and Measurement				
5.4 Nature and Process of Technology	A. Science and Technology	✓			
	B. Nature of Technology	✓			
	C. Technological Design	✓			
5.5 Life Science	A. Matter, Energy, and Organization in Living Systems	✓			
	B. Diversity and Biological Evolution				
	C. Reproduction and Heredity				
5.6 Physical Science – Chemistry	A. Structure and Properties of Matter	✓			
	B. Chemical Reactions	✓			
5.7 Physical Science – Physics	A. Motion and Forces	✓			
	B. Energy Transformations	✓			
5.8 Earth Science	A. Earth's Properties and Materials				
	B. Atmosphere and Weather				
	C. Processes that Shape the Earth				
	D. How We Study the Earth				
5.9 Astronomy and Space Science	A. Earth, Moon, Sun System				
	B. Solar System				
	C. Stars				
	D. Galaxies and Universe				
5.10 Environmental Studies	A. Natural Systems and Interactions	✓			
	B. Human Intersections and Impact				

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