

TITLE	NJ STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
A Chemist In the Kitchen ISBN 0022859462 6 PK ISBN 0022866175	5.1.4.A.1., 5.1.4.A.4., 5.1.4.B.1., 5.1.4.C.1., 5.1.4.C.2., 5.6.4.B.1.	L	680	<i>A Chemist in the Kitchen</i> defines the terms matter and chemistry, discusses elements, compounds, and mixtures, and gives procedures for several experiments that can be carried out in a kitchen.	chemist chemistry compound element mixture
A World of Microorganisms ISBN 0022846840 6 PK ISBN 0022864709	5.2.4.B.1., 5.5.4.B.1., 5.5.4.A.4.a.,	S	720	<i>A World of Microorganisms</i> explains that microorganisms are found almost everywhere, including in and on the human body, in water, and in the soil. This book also explains how vaccines can protect against disease.	bacteria cell microbe microorganism vaccine
Acids and Bases ISBN 0022859020 6 PK ISBN 0022866191	5.1.4.A.1., 5.1.4.A.2., 5.5.4.A.4.a., 5.10.4.B.1.	T	570	<i>Acids and Bases</i> describes the properties and uses of acids and bases and identifies the harmful effects of acid rain. The pH scale and neutralization are defined and described.	acid acidic base neutral pH
All About Elements ISBN 002285889X 6 PK ISBN 0022866140	5.1.4.B.1., 5.2.4.A.1., 5.2.4.B.1., 5.3.4.C.1.	M	500	<i>All About Elements</i> defines the terms matter and element, discusses historical research of elements, explains the structure of the atom, and the development of the periodic table.	atom atomic weight element periodic table property
Animal Senses ISBN 0022858989 6 PK ISBN 002286606X	5.5.4.A.3.	T	670	<i>Animal Senses</i> discusses the five commonly recognized senses and ways in which animals use these senses. It also describes other senses possessed by some animals such as the ability to detect electricity or heat.	echolocation organ sound wave taste buds tentacle

* - Also available in an English Language Learner version

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Barrier Islands * ISBN 0022858938 6 PK ISBN 0022866116	5.8.4.C.1., 5.8.4.C.2., 5.8.4.D.1., 5.10.4.B.1.	R	710	<i>Barrier Islands</i> describes the characteristics of barrier islands and the impact that erosion and hurricanes can have on barrier islands.	barrier island erosion hurricane storm surge tide
Caves: A World of Their Own * ISBN 0022846794 6 PK ISBN 0022864660	5.5.4.A.1., 5.8.4.C.1.	Q	750	<i>Caves: A World of Their Own</i> describes how caves are formed and identifies adaptations of living things found in caves. An interview with a cave explorer allows students to learn more about careers in science.	ecosystem erosional limestone mineral solution
Constellations ISBN 0022859012 6 PK ISBN 0022866132	5.1.4.B.1., 5.2.4.A.1., 5.2.4.B.1., 5.9.4.C.1., 5.9.4.D.1., 5.9.4.D.2.	T	530	<i>Constellations</i> explains that ancient Greeks were some of the first astronomers, identifies major constellations, and explains how the appearance of the night sky changes over the seasons. A star map is illustrated and explained.	astronomer astronomy constellation galaxy
Desert Animals and Plants ISBN 0022846786 6 PK ISBN 0022864652	5.5.4.A.3.	O	650	<i>Desert Animals and Plants</i> describes the adaptations of desert organisms such as kangaroo rats, horned lizards, pupfish, jack rabbits, saguaro cacti, and sagebrush. An explanation of how each of these organisms survives in an environment with very little water is given, and specific adaptations are pictured.	adapt cold-blooded saguaro scaly spine
Diamonds ISBN 0022846859 6 PK ISBN 0022864717	5.4.4.A.1.	O	700	<i>Diamonds</i> discusses gemstones and minerals, identifies properties of diamonds, describes how diamonds are formed, and describes some uses of diamonds. Chapter 3 includes a labeled diagram of Earth's layers.	carbon gemstone kimberlite pipes mineral Moh's scale
El Nino ISBN 0022846948 6 PK ISBN 0022864792	5.8.4.B.4., 5.8.4.C.1., 5.8.4.C.2., 5.8.4.D.1., 5.10.4.B.1.	S	720	<i>El Nino</i> describes the weather patterns associated with El Nino and La Nina and identifies the impact of global warming on these weather patterns. This book also discusses technologies used by scientists to detect coming El Nino events.	air pressure drought El Nino global warming La Nina

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Fossils and Fossil Fuels ISBN 0022859004 6 PK ISBN 0022866094	5.8.4.A.3., 5.10.4.A.1., 5.10.4.B.1.	T	620	<i>Fossils and Fossil Fuels</i> explains how fossils form and discusses what can be learned by studying fossils. It also describes the formation of fossil fuels, the detrimental effects of fossil fuel use, and possible alternatives to fossil fuel.	acid rain fossil fossil fuel nonrenewable sedimentary rock
Glaciers ISBN 0022846883 6 PK ISBN 0022864741	5.8.4.B.2.e., 5.8.4.C.1., 5.8.4.C.2., 5.8.4.D.1., 5.10.4.B.1.	O	680	<i>Glaciers</i> describes different kinds of glaciers, how glaciers move, how glaciers change the land, the characteristics of an ice age, and the impact of global warming on glaciers.	glacier ice age iceberg moraine
Gold! ISBN 0022861726 6 PK ISBN 0022866167	5.2.4.A.1., 5.8.4.D.1., 5.9.4.D.1.	T	730	<i>Gold!</i> describes the properties of gold, methods of mining for gold, reasons why gold is so valuable, and the impact of the Gold Rush on California's history. Uses of gold in medicine, telescopes, computers, telephones, and televisions are discussed	bullion geologist
Hidden Food Webs * ISBN 0022846832 6 PK ISBN 0022864695	5.5.4.A.1., 5.5.4.A.2.	Q	710	<i>Hidden Food Webs</i> describes food webs with an emphasis on the role of microorganisms in a variety of food webs. The terms producer, consumer, and decomposer are defined.	consumer decomposer food web microorganism producer
How Can We Save Them? ISBN 0022858997 6 PK ISBN 0022866086	5.5.4.A.1., 5.8.4.D.1., 5.10.4.B.1.	U	740	<i>How Can We Save Them?</i> discusses the diversity of living things on Earth and identifies reasons why species become endangered. The impact of extinctions on ecosystems and strategies for saving endangered species are also discussed. Chapter 7 highlights actions that individuals can take to help save endangered plants and animals.	diversity endangered extinct habitat species
It's Electric * ISBN 0022846964 6 PK ISBN 0022864822	5.2.4.A.1., 5.2.4.B.1., 5.7.4.B.3., 5.10.4.B.1.	Q	710	<i>It's Electric</i> describes the role of electrons in electricity, how electricity is delivered to homes, ways that consumption of electricity can be reduced, and scientists who have explored electricity. Alternative methods of producing electricity are discussed in chapter 5.	electric current electricity fossil fuel turbine volt

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Levers in Our Lives ISBN 0022859039 6 PK ISBN 002286623X	5.2.4.A.1., 5.2.4.B.1., 5.4.4.C.1., 5.7.4.A.1.	T	520	<i>Levers in Our Lives</i> describes how levers are used, discusses the three classes of levers, and identifies everyday examples of levers. The use of levers throughout history is described, including the role levers may have played in the building of the pyramids.	effort force fulcrum lever load simple machine
Lights and White Nights * ISBN 0022858946 6 PK ISBN 0022866124	5.2.4.A.1., 5.2.4.B.1., 5.9.4.A.1., 5.9.4.D.2.	Q	620	<i>Lights and White Nights</i> explains why Earth has seasons. It also explains how day and night at the poles are impacted by Earth's tilt on its axis, and explains how the Northern lights form.	atmosphere aurora horizon solar wind white night
Machines * ISBN 0022858970 6 PK ISBN 0022866221	5.4.4.C.1., 5.4.4.C.3.	R	680	<i>Machines</i> describes the six types of simple machines (inclined plane, wedge, screw, lever, wheel and axle, pulley) and ways that simple machines are combined to form compound machines. Examples of compound machines shown in the book include can openers, escalators, and bicycles.	compound machine inclined plane pulley screw simple machine
Maglev Trains ISBN 0022847014 6 PK ISBN 0022864865	5.2.4.A.1., 5.2.4.B.1., 5.7.4.A.2.b., 5.10.4.B.1.	S	680	<i>Maglev Trains</i> explains that maglev trains work by utilizing magnetic forces. It also describes advantages and disadvantages of this technology.	electromagnet guideway levitation magnet magnetic
Partners in Nature ISBN 0022846816 6 PK ISBN 0022864679	5.5.4.A.3.	T	700	<i>Partners in Nature</i> describes commensalism, parasitism, mutualism, and symbiosis. Examples of each type of relationship are described, for example, commensalism is illustrated by the relationship between remoras and sharks.	commensalism host mutualism parasite symbiosis
Rain Forests, Coral Reefs, and Deserts ISBN 0022859411 6 PK ISBN 0022866078	5.5.4.A.1., 5.8.4.D.1., 5.10.4.B.1.	L	700	<i>Rain Forests, Coral Reefs, and Deserts</i> describes the food chains in these ecosystems and identifies threats to these ecosystems. ways that ecosystems can be saved are also discussed.	coral reef desert ecosystem food chain rain forest

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Rocks * ISBN 0022846867 6 PK ISBN 0022864725	5.2.4.A.1., 5.2.4.B.1., 5.8.4.A.1., 5.8.4.A.3., 5.8.4.C.1.	Q	710	Rocks describes how rocks form, how they change as they move through the rock cycle, how fossils form, and careers that involve studying rocks. Igneous, metamorphic, and sedimentary rocks are described.	fossil geologist igneous metamorphic sedimentary
Scientists and Cells ISBN 0022858865 6 PK ISBN 0022866027	5.1.4.B.1., 5.2.4.A.1., 5.2.4.B.1.	L	510	Scientists and Cells describes the invention of the microscope, the development of cell theory and germ theory, and modern research involving cells. This book emphasizes the cumulative nature of scientific discovery.	cell cell theory germ theory microscope theory
Sources of Energy ISBN 0022858903 6 PK ISBN 0022866213	5.4.4.C.1., 5.8.4.D.1., 5.10.4.A.1., 5.10.4.B.1.	N	560	Sources of Energy identifies common energy sources, such as moving water and fossil fuels and describes alternative energy sources, such as solar energy and wind energy. Diagrams show how coal is used to make electricity in power plants and how hydroelectric power plants produces electricity.	energy fossil fuel hydropower power plant solar energy
The GALILEO Mission to Jupiter ISBN 002285942X 6 PK ISBN 002286993X	5.1.4.B.1., 5.2.4.B.1.	K	800	The Galileo Mission to Jupiter describes the discoveries made by the Galileo spacecraft and highlights the role of technology in advancing science.	asteroid astronomer mission outer planet probe
The Grand Canyon ISBN 0022846913 6 PK ISBN 0022864768	5.8.4.A.3., 5.8.4.C.1., 5.8.4.D.1.	S	750	The Grand Canyon explains how the Grand Canyon was formed, illustrates some of the features of the Grand Canyon, and describes some of the fossils that can be found in the Grand Canyon.	erosion fossil sandstone shale stratum
The Story of Alloys * ISBN 0022858962 6 PK ISBN 0022866183	5.2.4.A.1., 5.4.4.A.1., 5.4.4.C.1., 5.4.4.C.2., 5.4.4.C.3., 5.6.4.B.1.	R	590	The Story of Alloys defines the term alloy, identifies the roles alloys have played in cultures throughout history, and discusses potential future uses of alloys.	alloy bronze property steel superalloy

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Thomas Edison ISBN 0022846956 6 PK ISBN 0022864814	5.2.4.B.1., 5.4.4.C.1., 5.4.4.C.3., 5.7.4.B.3.	O	700	<i>Thomas Edison</i> describes his life and inventions, such as the phonograph and the kinetograph. The cumulative nature of the development of technology is described.	kinetograph kinetoscope patent phonograph telegraph
What is a Platypus? * ISBN 0022846891 6 PK ISBN 002286475X	5.2.4.A.1., 5.5.4.A.3.	R	580	<i>What On Earth is a Platypus?</i> explains how scientists determined how to classify the platypus. It explains that scientific knowledge often develops over time and is the result of the work of many people.	gland kingdom mammal organ reptile
What is Happening to the Beach? * ISBN 0022858911 6 PK ISBN 0022866035	5.8.4.C.2., 5.10.4.B.1.	Q	700	<i>What is Happening to the Beach?</i> describes how erosion changes beaches and ways that people can prevent beaches from eroding too quickly.	beach dune erosion jetty seawall
What's New on Earth? * ISBN 002285892X 6 PK ISBN 0022866051	5.3.4.A.3.a., 5.5.4.A.3., 5.5.4.B.2., 5.8.4.D.1.	R	650	<i>What's New On Earth?</i> describes some recently-discovered species and explains that the majority of Earth's species have yet to be discovered.	adaptation DNA environment rain forest species
What's the Matter? * ISBN 0022858954 6 PK ISBN 0022866159	5.6.4.A.2., 5.6.4.A.4.	R	600	<i>What's the Matter?</i> discusses matter, properties of matter, and states of matter in the context of a wide variety of sculptures.	alloy bronze neon property
Which Is Which? ISBN 0022858873 6 PK ISBN 0022866043	5.5.4.B.1., 5.5.4.B.2., 5.5.4.A.3.	L	460	<i>Which is Which?</i> explains how animals are classified and identifies differences between pairs of animals that are commonly confused.	classify genus kingdom mammal species
Why Does It Rain? ISBN 0022858881 6 PK ISBN 0022866108	5.6.4.A.2., 5.6.4.A.3., 5.8.4.B.4., 5.8.4.B.5., 5.8.4.B.6.	L	500	<i>Why Does It Rain?</i> Describes the distribution of saltwater and freshwater on Earth, describes the water cycle, and discusses the processes of evaporation and condensation. The three states of water are illustrated and described.	condensation evaporation fresh water water cycle water vapor

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New Jersey Core Curriculum Standards for Science

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.

5.1.4.A.**Habits of Mind**

5.1.4.A.1.

Raise questions about the world around them and be willing to seek answers through making careful observations and experimentation.

5.1.4.A.2.

Keep records that describe observations, carefully distinguish actual observations from ideas and speculations, and are understandable weeks and months later.

5.1.4.A.3.

Recognize that when a science investigation is replicated, very similar results are expected.

5.1.4.A.4.

Know that when solving a problem it is important to plan and get ideas and help from other people.

5.1.4.B.**Inquiry and Problem Solving**

5.1.4.B.1.

Develop strategies and skills for information-gathering and problem-solving, using appropriate tools and technologies.

5.1.4.B.2.

Identify the evidence used in an explanation.

5.1.4.C.**Safety**

5.1.4.C.1.

Recognize that conducting science activities requires an awareness of potential hazards and the need for safe practices.

5.1.4.C.2.

Understand and practice safety procedures for conducting science investigations.

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.

5.2.4.A.

Cultural Contributions

5.2.4.A.1.

Describe how people in different cultures have made and continue to make contributions to science and technology.

5.2.4.B.

Historical Perspectives

5.2.4.B.1.

Hear, read, write, and talk about scientists and inventors in historical context.

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.

5.3.4.A.

Numerical Operations

5.3.4.A.1.

Determine the reasonableness of estimates, measurements, and computations of quantities when doing science.

5.3.4.A.2.

Recognize and comprehend the orders of magnitude associated with large and small physical quantities.

5.3.4.A.3.

Express quantities using appropriate number formats, such as:

5.3.4.A.3.a.

Integers.

5.3.4.A.3.b.

Fractions.

5.3.4.B.

Geometry and Measurement

5.3.4.B.1.

Select appropriate measuring instruments based on the degree of precision required.

5.3.4.B.2.

Use a variety of measuring instruments and record measured quantities using the appropriate units.

5.3.4.C.

Patterns and Algebra

5.3.4.C.1.

Identify patterns when observing the natural and constructed world.

5.3.4.D.

Data Analysis and Probability

5.3.4.D.1.

Use tables and graphs to represent and interpret data.

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.

5.4.4.A.

Science and Technology

5.4.4.A.1.

Distinguish between things that occur in nature and those that have been designed to solve human problems.

5.4.4.B.

Nature of Technology

5.4.4.B.1.

Demonstrate how measuring instruments are used to gather information in order to design things that work properly.

5.4.4.C.

Technological Design

5.4.4.C.1.

Describe a product or device in terms of the problem it solves or the need it meets.

5.4.4.C.2.

Choose materials most suitable to make simple mechanical constructions.

5.4.4.C.3.

Use the design process to identify a problem, look for ideas, and develop and share solutions with others.

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.

5.5.4.A.

Matter, Energy, and Organization in Living Systems

5.5.4.A.1.

Identify the roles that organisms may serve in a food chain.

5.5.4.A.2.

Differentiate between the needs of plants and those of animals.

5.5.4.A.3.

Recognize that plants and animals are composed of different parts performing different functions and working together for the well being of the organism.

5.5.4.A.4.

Describe the basic functions of the major systems of the human body including, but not limited to:

- 5.5.4.A.4.a. digestive system.
- 5.5.4.A.4.b. circulatory system.
- 5.5.4.A.4.c. respiratory system.
- 5.5.4.A.4.d. nervous system.
- 5.5.4.A.4.e. skeletal system.
- 5.5.4.A.4.f. muscular system.
- 5.5.4.A.4.g. reproductive system.

5.5.4.B. Diversity and Biological Evolution

- 5.5.4.B.1. Develop a simple classification scheme for grouping organisms.
- 5.5.4.B.2. Recognize that individuals vary within every species, including humans.

5.5.4.C. Reproduction and Heredity

- 5.5.4.C.1. Identify different stages in the lives of various organisms.

STANDARD 5.6

(Chemistry) All students will gain an understanding of the structure and behavior of matter.

5.6.4.A. Structure and Properties of Matter

- 5.6.4.A.1. Sort materials based on physical characteristics that can be seen by using magnification.
- 5.6.4.A.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.
- 5.6.4.A.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.
- 5.6.4.A.4. Show that not all materials respond in the same way when exposed to similar conditions.

5.6.4.B.

5.6.4.B.1.

STANDARD 5.7**5.7.4.A.**

5.7.4.A.1.

5.7.4.A.2.

5.7.4.A.2.a.

5.7.4.A.2.b.

5.7.4.A.2.c.

5.7.4.B.

5.7.4.B.1.

5.7.4.B.2.

5.7.4.B.3.

5.7.4.B.4.

STANDARD 5.8**5.8.4.A.**

5.8.4.A.1.

Chemical Reactions

Combine two or more materials and show that the new material may have properties that are different from the original material.

(Physics) All students will gain an understanding of natural laws as they apply to motion, forces, and energy transformations.

Motion and Forces

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.

Recognize that some forces can act at a distance.

gravity

magnetism

static electricity

Energy Transformations

Identify sources of heat and demonstrate that heat can be transferred from one object to another.

Identify sources of light and demonstrate that light can be reflected from some surfaces and pass through others.

Use devices that show electricity producing heat, light, sound, and magnetic effects.

Show that differences in sound (loud or soft, high or low) can be produced by varying the way objects vibrate.

(Earth Science) All students will gain an understanding of the structure, dynamics, and geophysical systems of the earth.

Earth's Properties and Materials

Observe that most rocks and soils are made of several substances or minerals.

- 5.8.4.A.2. Observe that the properties of soil vary from place to place and will affect the soil's ability to support life.
- 5.8.4.A.3. Recognize that fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time.
- 5.8.4.B. Atmosphere and Weather**
- 5.8.4.B.1. Recognize that air is a substance that surrounds us, takes up space, and moves around us as wind.
- 5.8.4.B.2. Recognize that most of Earth's surface is covered by water and be able to identify the characteristics of those sources of water.
- 5.8.4.B.2.a. oceans
- 5.8.4.B.2.b. rivers
- 5.8.4.B.2.c. lakes
- 5.8.4.B.2.d. underground sources
- 5.8.4.B.2.e. glaciers
- 5.8.4.B.3. Observe weather changes and patterns by measurable quantities such as temperature, wind direction and speed, and amounts of precipitation.
- 5.8.4.B.4. Observe that when liquid water disappears, it turns into a gas (vapor) in the air and can reappear as a liquid when cooled, or as a solid if cooled below its freezing point.
- 5.8.4.B.5. Observe that rain, snow, and other forms of precipitation come from clouds, but that not all clouds produce precipitation.
- 5.8.4.B.6. Recognize that clouds and fog are made of tiny droplets of water and possibly tiny particles of ice.
- 5.8.4.C. Processes that Shape the Earth**
- 5.8.4.C.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.
- 5.8.4.C.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.

5.8.4.D.

How We Study the Earth

5.8.4.D.1.

Use maps to locate and identify physical features on the Earth.

STANDARD 5.9

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

5.9.4.A.

Earth, Moon, Sun System

5.9.4.A.1.

Observe patterns that result from the Earth's position relative to the sun and rotation of the Earth on its axis.

5.9.4.A.2.

Recognize and describe the phases of the moon.

5.9.4.B.

Solar System

5.9.4.B.1.

Describe Earth as one of several planets that orbit the sun and the moon as a satellite of the Earth.

5.9.4.C.

Stars

5.9.4.C.1.

Observe that stars are not all the same in brightness, size, and color.

5.9.4.D.

Galaxies and Universe

5.9.4.D.1.

Recognized that images of celestial objects can be magnified and seen in greater detail when observed using binoculars and light telescopes.

5.9.4.D.2.

Observe and record short-term and long-term changes in the night sky.

STANDARD 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.

5.10.4.A.

Natural Systems and Interactions

5.10.4.A.1.

Differentiate between natural resources that are renewable and those that are not.

5.10.4.B.

Human Interactions and Impact

5.10.4.B.1.

Explain how meeting human requirements affects the environment.