

TITLE	IL STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
A Chemist In the Kitchen ISBN 0022859462 6 PK ISBN 0022866175	11.A.2a, 11.A.2b, 11.A.2d, 13.A.2a	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	12.B.2a, 12.B.2b, 13.b.2b, 13.B.2c	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	13.B.2b, 13.B.2f	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	12.C.2b, 13.A.2a, 13.B.2b	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	12.B.2a, 12.B.2b	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	12.E.2b, 13.B.2e, 13.B.2f	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	12.B.2a, 12.B.2b, 12.E.2b	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	12.F.2a, 12.F.2b, 12.F.2c, 13.B.2b	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	12.B.2b	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	12.E.2b	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	12.E.2a, 12.E.2b, 13.B.2f	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	12.E.2b, 13.B.2d, 13.B.2e, 13.B.2f	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	12.E.2b, 13.B.2b, 13.B.2e, 13.B.2f	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	12.E.2c, 13.B.2a	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	12.B.2a	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	12.B.2a, 12.B.2b, 13.B.2e, 13.B.2f	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	13.B.2b, 13.B.2f	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	12.D.2b	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	12.F.2a	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	12.D.2b, 13.B.2b	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	12.D.2b, 13.B.2b, 13.B.2e, 13.B.2f	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	12.B.2a, 12.B.2b	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	12.B.2b, 13.B.2e, 13.B.2f	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	12.E.2a, 12.E.2b	Q	710	<i>Rocks</i> 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	13.B.2a, 13.B.2b	L	510	<i>Scientists and Cells</i> 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	12.C.2a, 13.B.2d	N	560	<i>Sources of Energy</i> 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	12.F.2a, 13.B.2a, 13.B.2b	K	800	<i>The Galileo Mission to Jupiter</i> 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	12.E.2b, 13.B.2c	S	750	<i>The Grand Canyon</i> 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	13.B.2b, 13.B.2c	R	590	<i>The Story of Alloys</i> 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	11.B.2b, 13.B.2b, 13.B.2c	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	12.B.2b	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	12.E.2b, 13.B.2e, 13.B.2f	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	12.B.2b, 13.B.2a, 13.B.2c	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	12.C.2b	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	12.B.2b	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	12.C.2b, 12.E.2a, 13.B.2f	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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ILLINOIS LEARNING STANDARDS

STATE GOAL 11:

Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.

Why This Goal Is Important: The inquiry process prepares learners to engage in science and apply methods of technological design. This understanding will enable students to pose questions, use models to enhance understanding, make predictions, gather and work with data, use appropriate measurement methods, analyze results, draw conclusions based on evidence, communicate their methods and results, and think about the implications of scientific research and technological problem solving.

A.

Know and apply the concepts, principles and processes of scientific inquiry.

11.A.2a

Formulate questions on a specific science topic and choose the steps needed to answer the questions.

11.A.2b

Collect data for investigations using scientific process skills including observing, estimating and measuring.

11.A.2c

Construct charts and visualizations to display data.

11.A.2d

Use data to produce reasonable explanations.

11.A.2e

Report and display the results of individual and group investigations.

B.

Know and apply the concepts, principles and processes of technological design.

11.B.2a

Identify a design problem and propose possible solutions.

11.B.2b

Develop a plan, design and procedure to address the problem identifying constraints (e.g., time, materials, technology).

11.B.2c

Build a prototype of the design using available tools and materials.

11.B.2d

Test the prototype using suitable instruments, techniques and quantitative measurements to record data.

11.B.2e

Assess test results and the effectiveness of the design using given criteria and noting possible sources of error.

11.B.2f

Report test design, test process and test results.

STATE GOAL 12:**Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.**

Why This Goal Is Important: This goal is comprised of key concepts and principles in the life, physical and earth/space sciences that have considerable explanatory and predictive power for scientists and non-scientists alike. These ideas have been thoroughly studied and have stood the test of time. Knowing and being able to apply these concepts, principles and processes help students understand what they observe in nature and through scientific experimentation. A working knowledge of these concepts and principles allows students to relate new subject matter to material previously learned and to create deeper and more meaningful levels of understanding.

A.**Know and apply concepts that explain how living things function, adapt and change.**

12.A.2a

Describe simple life cycles of plants and animals and the similarities and differences in their offspring.

12.A.2b

Categorize features as either inherited or learned (e.g., flower color or eye color is inherited; language is learned).

B.**Know and apply concepts that describe how living things interact with each other and with their environment.**

12.B.2a

Describe relationships among various organisms in their environments (e.g., predator/prey, parasite/host, food chains and food webs).

12.B.2b

Identify physical features of plants and animals that help them live in different environments (e.g., specialized teeth for eating certain foods, thorns for protection, insulation for cold temperature).

C.**Know and apply concepts that describe properties of matter and energy and the interactions between them.**

12.C.2a

Describe and compare types of energy including light, heat, sound, electrical and mechanical.

12.C.2b

Describe and explain the properties of solids, liquids and gases.

D.**Know and apply concepts that describe force and motion and the principles that explain them.**

12.D.2a

Explain constant, variable and periodic motions.

12.D.2b

Demonstrate and explain ways that forces cause actions and reactions (e.g., magnets attracting and repelling; objects falling, rolling and bouncing).

E. Know and apply concepts that describe the features and processes of the Earth and its resources.**12.E.2a**

Identify and explain natural cycles of the Earth's land, water and atmospheric systems (e.g., rock cycle, water cycle, weather patterns).

12.E.2b

Describe and explain short-term and long-term interactions of the Earth's components (e.g., earthquakes, types of erosion).

12.E.2c

Identify and classify recyclable materials.

F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.**12.F.2a**

Identify and explain natural cycles and patterns in the solar system (e.g., order of the planets; moon phases; seasons as related to Earth's tilt, one's latitude, and where Earth is in its yearly orbit around the sun).

12.F.2b

Explain the apparent motion of the sun and stars.

12.F.2c

Identify easily recognizable star patterns (e.g., the Big Dipper, constellations).

STATE GOAL 13:**Understand the relationships among science, technology and society in historical and contemporary contexts.**

Why This Goal Is Important: Understanding the nature and practices of science such as ensuring the validity and replicability of results, building upon the work of others and recognizing risks involved in experimentation gives learners a useful sense of the scientific enterprise. In addition, the relationships among science, technology and society give humans the ability to change and improve their surroundings. Learners who understand this relationship will be able to appreciate the efforts and effects of scientific discovery and applications of technology on their own lives and on the society in which we live.

A.**Know and apply the accepted practices of science.****13.A.2a**

Demonstrate ways to avoid injury when conducting science activities (e.g., wearing goggles, fire extinguisher use).

13.A.2b

Explain why similar investigations may not produce similar results.

13.A.2c

Explain why keeping accurate and detailed records is important.

B.**Know and apply concepts that describe the interaction between science, technology and society.**

13.B.2a	Explain how technology is used in science for a variety of purposes (e.g., sample collection, storage and treatment; measurement; data collection, storage and retrieval; communication of information).
13.B.2b	Describe the effects on society of scientific and technological innovations (e.g., antibiotics, steam engine, digital computer).
13.B.2c	Identify and explain ways that science and technology influence the lives and careers of people.
13.B.2d	Compare the relative effectiveness of reducing, reusing and recycling in actual situations.
13.B.2e	Identify and explain ways that technology changes ecosystems (e.g., dams, highways, buildings, communication networks, power plants).
13.B.2f	Analyze how specific personal and societal choices that humans make affect local, regional and global ecosystems (e.g., lawn and garden care, mass transit).