

Correlation of
Seeds of Science/Roots of Reading
4th and 5th Grade Integrated Science and Literacy Units:

Aquatic Ecosystems
Plants & Moons
Models of Matter
Chemical Changes

with the State of Illinois
Science Standards for Early and Late Elementary



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STATE GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.				
A. Know and apply the concepts, principles and processes of scientific inquiry.				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
11.A.1a Describe an observed event.	• • •	• • •	• • •	• • •
11.A.1b Develop questions on scientific topics.	• •	• • •	• •	• • •
11.A.1c Collect data for investigations using measuring instruments and technologies.	•	• • •	• •	• •
11.A.1d Record and store data using available technologies.	• • •	• • •	• • •	• • •
11.A.1e Arrange data into logical patterns and describe the patterns.	• • •	• • •	• • •	• • •
11.A.1f Compare observations of individual and group results.	• • •	• • •	• • •	• •
LATE ELEMENTARY				
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.	• • •	• • •	• • •	• • •
STATE GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems. (continued)				
B. Know and apply the concepts, principles and processes of technological design.				

	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
11.B.1a Given a simple design problem, formulate possible solutions.	• • •			
11.B.1b Design a device that will be useful in solving the problem.	• • •			
11.B.1c Build the device using the materials and tools provided.				
11.B.1d Test the device and record results using given instruments, techniques and measurement methods.				
11.B.1e Report the design of the device, the test process and the results in solving a given problem.	• •			
LATE ELEMENTARY				
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.				
A. Know and apply concepts that explain how living things function, adapt and change.				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
12.A.1a Identify and describe the component parts of living things (e.g., birds have feathers; people have bones, blood, hair, skin) and their major functions.		• • •		
12.A.1b Categorize living organisms using a variety of observable features (e.g., size, color, shape, backbone).		• • •		
LATE ELEMENTARY				
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).				

STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences. (continued)				
B. Know and apply concepts that describe how living things interact with each other and with their environment				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
12.B.1a Describe and compare characteristics of living things in relationship to their environments.		• • •		
12.B.1b Describe how living things depend on one another for survival.		• • •		
LATE ELEMENTARY				
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).		• • •		

STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences. (continued)				
C. Know and apply concepts that describe properties of matter and energy and the interactions between them.				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
12.C.1a Identify and compare sources of energy (e.g., batteries, the sun).	•			
12.C.1b Compare large-scale physical properties of matter (e.g., size, shape, color, texture, odor).				•••
LATE ELEMENTARY				
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.	•		•••	

STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences. (continued)				
D. Know and apply concepts that describe force and motion and the principles that explain them.				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
12.D.1a Identify examples of motion (e.g., moving in a straight line, vibrating, rotating).	• •			
12.D.1b Identify observable forces in nature (e.g., pushes, pulls, gravity, magnetism).	• •			
LATE ELEMENTARY				
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)	• •			

STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences. (continued)				
E. Know and apply concepts that describe the features and processes of the Earth and its resources.				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
12.E.1a Identify components and describe diverse features of the Earth's land, water and atmospheric systems.		•		
12.E.1b Identify and describe patterns of weather and seasonal change.				
12.E.1c Identify renewable and nonrenewable natural resources.				
12.E.2c Identify and classify recyclable materials.				
LATE ELEMENTARY				
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).				

STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences. (continued)				
F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
12.F.1a Identify and describe characteristics of the sun, Earth and moon as familiar objects in the solar system.	• • •			
12.F.1b Identify daily, seasonal and annual patterns related to the Earth's rotation and revolution.	• • •			
LATE ELEMENTARY				
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.				
A. Know and apply the accepted practices of science.				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
13.A.1a Use basic safety practices (e.g., not tasting materials without permission, “stop/drop/roll”).	•	•	••	•••
13.A.1b Explain why similar results are expected when procedures are done the same way.	•	••	••	••
13.A.1c Explain how knowledge can be gained by careful observation.	•••	•••	•••	•••
LATE ELEMENTARY				
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.	••	•••	•••	•••

STATE GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts. (continued)				
B. Know and apply concepts that describe the interaction between science, technology and society.				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
EARLY ELEMENTARY				
13.B.1a Explain the uses of common scientific instruments (e.g., ruler, thermometer, balance, probe, computer).	• •	• • •	• •	• • •
13.B.1b Explain how using measuring tools improves the accuracy of estimates.		• •		• •
13.B.1c Describe contributions men and women have made to science and technology.	• •	• •	• •	• •
13.B.1d Identify and describe ways that science and technology affect people’s everyday lives (e.g., transportation, medicine, agriculture, sanitation,	•	• •	• •	• • •
13.B.1e Demonstrate ways to reduce, reuse and recycle materials.				
LATE ELEMENTARY				
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).	• •	• •	• •	• •

STATE GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts. (continued)				
B. Know and apply concepts that describe the interaction between science, technology and society. (continued)				
	Planets and Moons	Aquatic Ecosystems	Models of Matter	Chemical Changes
LATE ELEMENTARY (continued)				
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).		• • •		