

School District of La Crosse

**Fourth Grade Science
Curriculum**

1999-2000

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Guiding Principles for Curriculum Development School District of LaCrosse

Board of Education's ENDS Policies Adopted 2001

E-1 District Mission

Students will discover their talents and abilities and will be prepared to pursue their dreams and aspirations while contributing effectively to their diverse communities.

E-2 Academic Achievement Goals

Students will demonstrate continuous improvement toward a high level of individual success in all required and elective academic/curricular areas using multiple measures of performance.

E-3 Involved Citizenship

Students will strive for mutual understanding as contributing citizens in a diverse world.

E-4 Responsible Life Choices

Students will acquire the knowledge and skills necessary to make effective and responsible life choices.

Wisconsin Academic Model Standards

All district curricula will be aligned to the Wisconsin Model Academic Standards available on the web at <http://www.dpi.state.wi.us/dpi/standards/sciintro.html>

District Non-Discrimination Policy

It is the policy of the School District of La Crosse that no person may be denied admission to any public school in this district or be denied participation in, be denied the benefits of, or be discriminated against in any curricular, extracurricular, pupil service, recreation, or other program or activity because of the person's sex, race, religion, national origin, ancestry, creed, pregnancy, marital or parental status, sexual orientation, or physical, mental, emotional, or learning disability or handicap as required by s. 118.13 Wis. Stats., and/or section 504 of the Rehabilitation Act of 1973.

**School District of La Crosse
Elementary Science Curriculum 2003-2004**

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade
Animals (L)	Organisms Plants & Animals (L) (New STC '96-'97)	Balancing & Weighing (P) (New STC '95-'96)	Rocks & Minerals (E) (New STC '97-'98)	Plant Growth & Development (L) (New STC '97-'98)	Ecosystems (E) (New STC '95-'96)
Plants (L)	Comparing & Measuring (P) (Pilot STC '98-'99)	Changes (P) (Pilot STC '98-'99)	Sound (P) (New STC '95-'96)	Motion & Design (P) (New STC '98-'99)	Color & Light
Weather & Clothing (E) Fabric (Optional) (Foss '98-'99)	Solids & Liquids (P) (New STC '98-'99)	Life Cycle of a Butterfly (L) (New STC '96-'97)	Animals, Habitats & Plants (L) (Delta '99-'00)	Astronomy (E) (Harcourt/Brace '99- '00)	Floating & Sinking (P) (New STC '96-'97)
Paper (P) (Foss '98-'99)	Weather & Me (E) (New STC '95-'96)	Soils (E) (New STC '97-'98)	Chemical Tests (P) (New STC '96-'97)	Electric Circuits (P) (New STC '95-'96)	Microworlds (L) (New STC '97-'98)

All STC Units emphasize scientific reasoning skills/process skills
 Observing Grades 1-5
 Measuring Grades 1-5

Identifying Properties 1-5
 Seeking Evidence 1-5

Recognizing Patterns & Cycles 2-5
 Identifying Cause and Effect 4-5

Extending the Senses 4-5

La Crosse School District Science

Subject/Course: Elementary Science

Grade: 4

Topics/Skills: Life & Environmental Science:
Plant Growth & Development

Time: 16 Lessons

Curriculum Subtopics:

- Characteristics of Organisms: Plants
- Life Cycle of Organisms: Plants
- Organisms and Their Environment

CURRICULUM

District Benchmarks/Students will learn?

- Observing, describing, reporting, comparing plant growth and development to predict, discuss, display changes in plants over time. Standards A and C.
- That many plants follow a life cycle that begins with growth from a seed and proceeds through the production of seeds. Standard F.
- That plants have distinct stages of their life cycle. Standard F.
- That plants need light, water and nutrients from the soil to live and grow. Standard F.
- That flowering plants must be pollinated in order to produce seeds. Standard F.
- That plants are pollinated by bees. Standard F.
- About careers involving plant growth and development. Standard G.
- How science and technology have provided more, better, and safer food. Standard H.

State Content Standard: A - Science Connections

State Performance Standards: A4.1, A.4.2, A.4.3, A.4.4, A.4.5

State Content Standard: C – Science Inquiry

State Performance Standards: C.4.1, C.4.2, C.4.4, C.4.5, C.4.6, C.4.7, C.4.8

State Content Standard: F – Life and Environmental Science

State Performance Standards: F.4.1, F.4.2, F.4.3, F.4.4

State Content Standard: G – Science Applications

State Performance Standards: G.4.1

State Content Standard: H – Science in Social and Personal Perspective

State Performance Standards: H.4.1, H.4.2

ASSESSMENT

Assessment/Proficiency

Examples of classroom assessments: Drawings, journals embedded products and activities, anecdotal notes and paper and pencil responses.

_____	State/WSAS Test Concept
_____	District Assessment
<u> X </u>	Classroom Assessments

INSTRUCTION

Teaching/Learning Strategies

- KWL – Chart – What do you know? What do you want to know? What have you learned?
- Inquiry Based Learning (hands on/minds on)
- Concept Webs
- Venn Diagrams
- T - Charts

Resources

- STC Science Kit and T.E. – Plant Growth and Development
- Software _____
- Website: Fast Plants
- Trade books: Bibliography in T.E. Manual
- Field Trips: Possible – Green House
- Forester – Jim Melton
- County Agriculture Agent
- Food Co-op
- Bee Keeper
- Community Garden – Sue Schultz – Marilyn Hurt

La Crosse School District Science

Subject/Course: Elementary Science

Grade: 4

Topics/Skills: Physical Science:
Motion and Design

Time: Minimum 16 Lessons

Curriculum Subtopics:

- Designing vehicles and their technical drawings
- Concepts of motion and the position of objects
- Motion and its relationship to forces
- Change of technological design – motion, cost and purpose

CURRICULUM

District Benchmarks/Students will learn?

- To predict, observe, describe and record results of experiments with motion and design. Standards A and E.
- To recognize and construct vehicles from technical 2 and 3 view drawings. Standard G.
- To design a vehicle that is propelled by stored energy. Standard D and G.
- To predict the movement of a vehicle based on design and force. Standard D.
- That a force (a push or pull) is needed to cause a change in motion. Standard D.
- That friction opposes motion.
- That engineers develop, modify, and improve design to meet requirements. Standards B and H.

State Content Standard: A - Science Connections

State Performance Standards: A4.1, A.4.2, A.4.3, A.4.4, A.4.5

State Content Standard: B – Nature of Science

State Performance Standards: B.4.1, B.4.2, B.4.3

State Content Standard: C - Science Inquiry

State Performance Standards: C.4.1, C.4.2, C.4.3, C.4.4, C.4.5, C.4.6, C.4.7, C.4.8

State Content Standard: D – Physical Science

State Performance Standards: D.4.4, D.4.5, D.4.6, D.4.7

State Content Standard: G – Science Applications

State Performance Standards: G.4.4

State Content Standard: H – Science Social and Personal Perspectives
State Performance Standards: H.4.1, H.4.2

ASSESSMENT

Assessment/Proficiency

Examples of classroom assessments: Drawings, journals embedded products and activities, anecdotal notes and paper and pencil responses.

_____ State/WSAS Test Concept
_____ District Assessment
 X Classroom Assessments

INSTRUCTION

Teaching/Learning Strategies

- KWL – Chart – What do you know? What do you want to know? What have you learned?
- Inquiry Based Learning (hands on/minds on)
- Concept Webs
- Venn Diagrams
- T - Charts

Resources

- STC Science Kit and T.E. – Motion and Design
- Trade books: Bibliography in T.E. Manual

La Crosse School District Science

Subject/Course: Elementary Science

Grade: 4

Topics/Skills: Earth Science: Astronomy

Time: 2-3 Weeks

Curriculum Subtopics:

- What is the solar system?
- What causes Earth's seasons?
- How do the Moon and Earth interact?
- What is beyond the solar system? (optional)
- How do people study the solar system?

CURRICULUM

District Benchmarks/Students will learn?

- To identify the basic components of the solar system (stars, planets, moon, asteroids and comets). Standard E.
- To identify the order of the inner and outer grouping of the planets and their characteristics. Standards E and B.
- To describe the motion of earth in relation to the sun including day, night, year and the seasons. Standard E.
- To recognize the different phases of the moon and know what an eclipse is. Standard E.
- What tools are used to observe and explore space. Standards A, C, G, and H.

State Content Standard: A - Science Connections

State Performance Standards: A4.1, A.4.3. A/4/4

State Content Standard: B – Nature of Science

State Performance Standards: B.4.1, B.4.2, B.4.3

State Content Standard: C - Science Inquiry

State Performance Standards: C.4.1, C.4.2, C.4.3, C.4.4, C.4.5, C.4.6

State Content Standard: E – Earth and Space Science

State Performance Standards: E.4.4, E.4.5, E.4.6

State Content Standard: G – Science applications

State Performance Standards: G.4.1, G.4.3

State Content Standard: H – Science in Social and Personal Perspective

State Performance Standards: H.4.1, H.4.3

ASSESSMENT

Assessment/Proficiency

Examples of classroom assessments: Drawings, journals embedded products and activities, anecdotal notes and paper and pencil responses.

<input type="checkbox"/>	State/WSAS Test Concept
<input type="checkbox"/>	District Assessment
<input checked="" type="checkbox"/>	Classroom Assessments

INSTRUCTION

Teaching/Learning Strategies

- This unit can be integrated into the Language Arts curriculum
- KWL – Chart – What do you know? What do you want to know? What have you learned?
- Inquiry Based Learning (hands on/minds on)
- Concept Webs
- Venn Diagrams
- T - Charts

Resources

- Harcourt Brace – Science Book – Unit D – Chapter 3
(Chapters 1 and 2 are optional and could be used as part of the Language Arts guided reading program)
- Software – World Book Encyclopedia
- Planetarium Trip
- Websites: <http://athena.wednet.edu/curric/space/index/html>
<http://vulcan.wr.usgs.gov/photo/framework.html>
<http://seds.lpl.arizona.edu/nneplanets/nineplanets.html>
www.viterbo.edu

La Crosse School District Science

Subject/Course: Elementary Science

Grade: 4

Topics/Skills: Physical Science:
Electric Circuits

Time: 16 Lessons

Curriculum Subtopics:

- Conductors and Insulators
- Series and Parallel Circuits
- Electrical Safety
- Design, Construct and Evaluate a Circuit

CURRICULUM

District Benchmarks/Students will learn?

- To predict, observe, describe, and record results of experiments with electricity. Standards A and C.
- To recognize and construct a complete circuit. Standard D.
- To differentiate between insulators and conductors. Standard D.
- To use symbols to construct schematic electrical drawings. Standard D.
- Electrical Safety. Standard H.
- To describe the number of electrical uses. Standard H.
- Analyze some of the ways electrical technology is used to help us in our daily lives. Standard H.

State Content Standard: A - Science Connections

State Performance Standards: A4.1, A.4.2, A.4.3

State Content Standard: C – Science Inquiry

State Performance Standards: C.4.1, C.4.2, C.4.3, C.4.4, C.4.5, C.4.6, C.4.7, C.4.8

State Content Standard: D – Physical Science

State Performance Standards: D.4.2, D.4.8

State Content Standard: G – Science Applications

State Performance Standards: G.4.1

State Content Standard: H – Science in Social and Personal Perspective

State Performance Standards: H.4.1, H.4.3

ASSESSMENT

Assessment/Proficiency

Examples of classroom assessments: Drawings, journals embedded products and activities, anecdotal notes and paper and pencil responses.

_____	State/WSAS Test Concept
_____	District Assessment
<u> X </u>	Classroom Assessments

INSTRUCTION

Teaching/Learning Strategies

- KWL – Chart – What do you know? What do you want to know? What have you learned?
- Inquiry Based Learning (hands on/minds on)
- Concept Webs
- Venn Diagrams
- T - Charts

Resources

- STC Science Kit and T.E. – Plant Growth and Development
- Software _____
- Trade books: Bibliography in T.E. Manual
- Field Trips: Dairyland Power Plant
- Forester – Jim Melton
- NSP or Vernon Electric Presentations – pamphlets and video
- Electricity Chart – Learning Shop

Wisconsin Model Academic Standards		4 th Grade Science Alignment			
		PGD	MD	A	EC
A. Science Connections					
A.4.1	When conducting science investigations ask and answer questions that will help decide the general areas of science being addressed.	✓	✓	✓	✓
A.4.2	When faced with a science-related problem, decide what evidence, models, or explanations previously studied can be used to better understand what is happening now.	✓	✓		✓
A.4.3	When investigating a science-related problem, decide what data can be collected to determine the most useful explanations.	✓	✓	✓	✓
A.4.4	When studying science-related problems, decide which of the science themes are important.	✓	✓	✓	
A.4.5	When studying science-related problems, decide what changes over time are occurring or have occurred.	✓	✓		
B. Nature of Science					
B.4.1	Use encyclopedias, source books, texts, computers, teachers, parents, other adults, journals, popular press, and various other sources, to help answer science-related questions and plan investigations.		✓	✓	
B.4.2	Acquire information about people who have contributed to the development of major ideas in the sciences and learn about the cultures in which these people lived and worked.		✓	✓	
B.4.3	Show how the major developments of scientific knowledge in the earth and space, life and environmental, and physical sciences have changed over time.		✓	✓	
C. Science Inquiry					
C.4.1	Use the vocabulary of the unifying themes to ask questions about objects, organisms, and events being studied.	✓	✓	✓	✓
C.4.2	Use the science content being learned to ask questions, plan investigations, make observations, make predictions, and offer explanations.	✓	✓	✓	✓
C.4.3	Select multiple sources of information to help answer questions selected for classroom investigations.		✓	✓	✓
C.4.4	Use simple science equipment safely and effectively, including rulers, balances, graduated cylinders, hand lenses, thermometers, and computers, to collect data relevant to questions and investigations.	✓	✓	✓	✓
C.4.5	Use data they have collected to develop explanations and answer questions generated by investigations.	✓	✓	✓	✓
C.4.6	Communicate the results of their investigations in ways their audiences will understand by using charts, graphs, drawings, written descriptions, and various other means, to display their answers.	✓	✓	✓	✓
C.4.7	Support their conclusions with logical arguments.	✓	✓		✓
C.4.8	Ask additional questions that might help focus or further an investigation.	✓	✓		✓
D. Physical Science					
PROPERTIES OF EARTH MATERIALS					

Wisconsin Model Academic Standards		PGD	MD	A	EC
4 th Grade Science Alignment					
D.4.1	Understand that objects are made of more than one substance, by observing, describing and measuring the properties of earth materials, including properties of size, weight, shape, color, temperature, and the ability to react with other substances.				
D.4.2	Group and/or classify objects and substances based on the properties of earth materials.				✓
D.4.3	Understand that substances can exist in different states – solid, liquid, gas				
D.4.4	Observe and describe changes in form, temperature, color, speed, and direction of objects and construct explanations for the changes.		✓		
D.4.5	Construct simple models of what is happening to materials and substances undergoing change, using simple instruments or tools to aid observations and collect data.		✓		
POSITION AND MOTION OF OBJECTS					
D.4.6	Observe and describe physical events in objects at rest or in motion.		✓		
D.4.7	Observe and describe physical events involving objects and develop record-keeping systems to follow these events by measuring and describing changes in their properties, including position relative to another object, motion over time, and position due to forces.		✓		
LIGHT, HEAT, ELECTRICITY, AND MAGNETISM					
D.4.8	Ask questions and make observations to discover the differences between substances that can be touched (matter) and substances that cannot be touched (forms of energy, light, heat, electricity, sound, and magnetism).				✓
E. Earth and Space Science					
PROPERTIES OF EARTH MATERIALS					
E.4.1	Investigate that earth materials are composed of rocks and soils and correctly use the vocabulary for rocks, minerals, and soils during these investigations.				
E.4.2	Show that earth materials have different physical and chemical properties, including the properties of soils found in Wisconsin.				
E.4.3	Develop descriptions of the land and water masses of the earth and of Wisconsin's rocks and minerals, using the common vocabulary of earth and space science.				
OBJECTS IN THE SKY					
E.4.4	Identify celestial objects (stars, sun, moon, planets) in the sky, noting changes in patterns of those objects over time.			✓	
CHANGES IN THE EARTH AND SKY					
E.4.5	Describe the weather commonly found in Wisconsin in terms of clouds, temperature, humidity, and forms of precipitation, and the changes that occur over time, including seasonal changes.			✓	
E.4.6	Using the science themes, find patterns and cycles in the earth's daily, yearly, and long-term changes			✓	
E.4.7	Using the science themes, describe resources used in the home, community, and nation as a whole.				
E.4.8	Illustrate human resources use in mining, forestry, farming, and manufacturing in				

Wisconsin Model Academic Standards		PGD	MD	A	EC
4 th Grade Science Alignment					
	Wisconsin and elsewhere in the world.				
F. Life and Environmental Science					
THE CHARACTERISTICS OF ORGANISMS					
F.4.1	Discover how each organism meets its basic needs for water, nutrients, protection, and energy in order to survive.	✓			
F.4.2	Investigate how organisms, especially plants, respond to both internal cues (the need for water) and external cues (changes in the environment).	✓			

LIFE CYCLES OF ORGANISMS					
F.4.3	Illustrate the different ways that organisms grow through life stages and survive to produce new members of their type.	✓			
ORGANISMS AND THEIR ENVIRONMENT					
F.4.4	Using the science themes, develop explanations for the connections among living and non-living things in various environments.	✓			
G. Science Applications					
G.4.1	Identify the technology used by someone employed in a job or position in Wisconsin and explain how the technology helps.	✓		✓	✓
G.4.2	Discover what changes in technology have occurred in a career chosen by a parent, grandparent, or an adult friend over a long period of time.				
G. 4.3	Determine what science discoveries have led to changes in technologies that are being used in the workplace by someone employed locally.			✓	
G.4.4	Identify the combinations of simple machines in a device used in the home, the workplace, or elsewhere in the community, to make or repair things, or to move goods or people.		✓		
G.4.5	Ask questions to find answers about how devices and machines were invented and produced.				
H. Science in Social and Personal Perspectives					
H.4.1	Describe how science and technology have helped, and in some cases hindered, progress in providing better food, more rapid information, quicker and safer transportations, and more effective health care.	✓	✓	✓	✓
H.4.2	Using the science themes, identify local and state issues that are helped by science and technology and explain how science and technology can also cause a problem.	✓			
H.4.3	Show how science has contributed to meeting personal needs, including hygiene, nutrition, exercise, safety, and health care.			✓	✓
H.4.4	Develop a list of issues that citizens must make decisions about and describe a strategy for becoming informed about the science behind these issues.		✓		

GLOSSARY OF TERMS

SCIENCE THEMES

Each of the following terms refers to a theme that connects and unifies the many disciplines of science. The themes are found particularly in Standard A and are mentioned consistently throughout the science standards. They are identified with an asterisk (*) each time they appear.

Change. A variance in the rate, scale, and pattern, including trends and cycles.

Constancy. The stability of a property, such as the speed of light.

Equilibrium. The physical state in which forces and changes occur in opposite and offsetting directions.

Evidence. Data and documentation that support inferences or conclusions.

Evolution. A series of changes, some gradual and some sporadic, that accounts for the present form and function* of objects.

Explanation. The skill of communication in which an interpretation of information is given and stated to others.

Form and Function. Complimentary aspects of objects, organisms, and systems in the natural world.

Measurement. The quantification of changes in systems, including mathematics.

Models. Tentative schemes or structures that correspond to real objects, events, or classes of events, and that have explanatory power.

Order. The behavior of units of matter, objects, organisms, or events in the universe.

Organization. Descriptions of systems based on complexity and/or order.

Systems. An organized group of related objects or components that form a whole.

TERMS UNIQUE TO SCIENCE

The following terms are used uniquely in science. They are used consistently throughout the standards and are identified by an asterisk (*) each time they appear. They represent the range of rigorous science skills and knowledge found in the standards.

Analyze. The skill of recognizing the underlying details of important facts or patterns that are not always readily visible.

Apply. The skill of selecting and using information in other situations or problems.

Construct. The skill of developing or creating.

Describe. The skill of developing a detailed picture or image.

Discover. The skill of learning through study or investigation.

Energy. The work that a physical system is capable of completing or doing.

Evaluate. The skill of collecting and examining data to make judgments and appraisals.

Group. The skill of identifying objects according to characteristics.

Identify. The skill of recognizing patterns, facts, or details.

Inference. The skill of using the results of an investigation based on a premise.

Illustrate. The skill of giving examples to describe something.

Interaction. The influence of objects, materials, or events on one another.

Investigate. Scientific methodology that systematically employs many inquiry skills.

Observation. The skill of describing scientific events.

Predict. The skill of explaining new events based on observations or information.

Relate. The skill of association.

Show. The skill of illustration.

Understand. The skill of having and applying well-organized bodies of knowledge.

4th Grade Explanatory Notes on WI State Science Standards in Relation to School Curriculum 1999-2000

Plant Growth and Development

A. Science Connections

Students in Wisconsin will understand that there are unifying themes: (systems, order, organization, and interactions); (evidence, models, and explanations); (constancy, change, and measurement); (evolution, equilibrium, and energy); (form and function) among the scientific disciplines.

- A.4.1 This unit should be emphasized as a Life & Environmental Science unit.
- A.4.2 Previous science investigation by students in 1st, 2nd, and 3rd grade have involved the use of scientific investigations to solve problems, and are being used to study plant growth and development.
- A.4.3 Students should be aware that growth can be measured by the height of the plant.
- A.4.4 Students should understand the themes of: constancy, change and measurement (change in growth requires measurement); and form and function (roots and water absorption, roots and stability).
- A.4.5 Students should be given insights into Wisconsin Fast Plants and the procedure used for their development.

B. Nature of Science

Students in Wisconsin will understand that science is ongoing and inventive, and that scientific understandings have changed over time as new evidence is found

Not covered in this unit.

C. Science Inquiry

Students in Wisconsin will investigate questions using scientific methods and tools, revise their personal understanding to accommodate knowledge, and communicate these understandings to others.

- C.4.1 Exploration involving plant growth and development requires students to understand themes of change, constancy, and measurement. The students must also learn the steps involved with plant growth and their life cycle.
- C.4.2 Students should understand the steps involved in science investigations (scientific method; planning, observing, predicting and explaining)

C.4.4 Students learn to use the tools of science needed in this unit, hand lenses, rulers, etc.

C.4.5 Students will collect data on plant growth and make an inference.

C.4.6 Students will communicate through graphs or charts the results of their investigations.

C.4.7 Students will be able to discuss and support their results.

C.4.8 Students may want to do investigations on using different plants, soil, etc.

D. Physical Science

Students in Wisconsin will demonstrate an understanding of the physical and chemical properties of matter, the forms and properties of energy, and the ways in which matter and energy interact.

Not covered in this unit.

E. Earth and Science

Students in Wisconsin will demonstrate an understanding of the structure and systems of the earth and other bodies in the universe and their interactions.

Not covered in this unit.

F. Life and Environmental Science

Students in Wisconsin will demonstrate an understanding of the characteristics and structures of living things, the processes of life, and how living things interact with one another and their environment.

F.4.1 Plant growth requires water, light, etc.

F.4.2 Plants respond to light, need for water, etc.

F.4.3 Plant life cycles should be illustrated.

F.4.4 Plants are dependent on non-living materials to grow.

G. Science Applications

Students in Wisconsin will demonstrate an understanding of the relationship between science and technology and the ways in which that relationship influences human activities.

G.4.1 Students should gain insights into Wisconsin farm technology use; genetically engineered plant, herbicides, pesticides, types of machinery, etc.

H. Science in Social and Personal Perspectives

Students in Wisconsin will use scientific information and skills to make decisions about themselves, Wisconsin, and the world in which they live.

H.4.1 Plants can be produced to give a greater yield and are distributed fresher and faster.

H.4.2 Genetically modified plants have positive and negative issues.

Astronomy

A. Science Connections

Students in Wisconsin will understand that there are unifying themes: (systems, order, organization, and interactions); (evidence, models, and explanations); (constancy, change, and measurement); (evolution, equilibrium, and energy); (form and function) among the scientific disciplines.

A.4.1 The students should be aware that this is an Earth and Space Science area.

A.4.3 Student investigation of space objects requires measurements of position and time (seasons and sun's angle in the sky, moon phases, etc.).

A.4.4 Students should understand the themes of: systems, order, organization and interactions (sun and earth interactions); constancy, change, and measurement (seasonal change); evolution, energy and equilibrium (order of planets, gravity).

B. Nature of Science

Students in Wisconsin will understand that science is ongoing and inventive, and that scientific understandings have changed over time as new evidence is found.

B.4.1 Students will use other resources to study this area (encyclopedias, internet, textbook, current events, etc).

B.4.2 Students should be aware of some of the history and people making contributions to Astronomy.

B.4.3 Our knowledge of astronomy has improved with technology, i.e. telescopes, space travel, etc.

C. Science Inquiry

Students in Wisconsin will investigate questions using scientific methods and tools, revise their personal understanding to accommodate knowledge, and communicate these understandings to others.

C.4.1 Students should be aware of the terms systems, order, organization and interactions (sun, moon and planets); constancy, change, and measurement (seasons, day/night and moon phases).

C.4.2 Students should understand the steps involved in science investigations (science investigations: planning, observing, predicting and explanations).

C.4.3 Students use internet, planetarium, encyclopedias, star lab, etc. to assist learning.

C.4.4 Students use tools of science to collect data (seasonal changes – thermometers, angle of sun, rulers).

C.4.5 Students use their collected data to make inferences.

C.4.6 Students will communicate the results of their investigations.

D. Physical Science

Students in Wisconsin will demonstrate an understanding of the physical and chemical properties of matter, the forms and properties of energy, and the ways in which matter and energy interact.

Not covered in this unit.

E. Earth and Space Science

Students in Wisconsin will demonstrate an understanding of the structure and systems of the earth and other bodies in the universe and their interactions.

E.4.4 Self-explanatory

E.4.5 Self-explanatory

E.4.6 Self-explanatory

F. Life and Environmental Science

Students in Wisconsin will demonstrate an understanding of the characteristics and structures of living things, the processes of life, and how living things interact with one another and their environment.

Not covered in this unit.

G. Science Applications

Students in Wisconsin will demonstrate an understanding of the relationship between science and technology and the ways in which that relationship influences human activities.

G.4.1 Astronauts, Astronomers – Deke Slayton, Mark Lee, etc.

G.4.3 Freeze-dried foods, Velcro, etc.

H. Science in Social and Personal Perspectives

Students in Wisconsin will use scientific information and skills to make decisions about themselves, Wisconsin, and the world in which they live.

H.4.1 Science and Technology from space program has improved computer technology and information transfer (satellites).

H.4.3 Food Preparation

Electric Circuits

A. Science Connections

Students in Wisconsin will understand that there are unifying themes: (systems, order, organization, and interactions); (evidence, models and explanations); (constancy, change, and measurement); (evolution, equilibrium, and energy); (form and function) among the scientific disciplines.

A.4.1 Students should be aware that this is a physical science area.

A.4.2 Previous science investigations by the students (1st, 2nd, and 3rd grade) have involved the use of the Scientific Method to solve problems, and are being used to study electric circuits.

A.4.3 Investigating the “Hidden circuit box” requires the student to collect data before the hidden circuits can be explained.

B. Nature of Science

Students in Wisconsin will understand that science is ongoing and inventive, and that scientific understandings have changed over time as new evidence is found.

Not covered in this unit.

C. Science Inquiry

Students in Wisconsin will investigate questions using scientific methods and tools, revise their personal understanding to accommodate knowledge, and communicate these understandings to others.

C.4.1 Exploration involving a bulb, wire, and battery requires the students to understand the science themes of form and function; evidence, models, and explanations; and constancy, change, and measurement.

C.4.2 Building and also solving other “hidden circuit boxes” requires planning, observations, predictions, and explanations.

C.4.3 Wiring a model house suggests the use of outside sources of information.

C.4.4 Building a circuit tester to solve the hidden circuit boxes.

C.4.5 Solving the “hidden circuit boxes.”

C.4.6 Solving the “hidden circuit boxes.”

C.4.7 Solving the “hidden circuit boxes.”

C.4.8 Wiring a model house using only one power source.

D. Physical Science

Students in Wisconsin will demonstrate an understanding of the physical and chemical properties of matter, the forms and properties of energy, and the ways in which matter and energy interact.

D.4.2 Properties of insulators and conductors.

D.4.8 Electricity cannot be seen or touched like an object.

E. Earth and Space Science

Students in Wisconsin will demonstrate an understanding of the structure and systems of the earth and other bodies in the universe and their interactions.

Not covered in this unit.

F. Life and Environmental Science

Students in Wisconsin will demonstrate an understanding of the characteristics and structures of living things, the processes of life, and how living things interact with one another and their environment.

Not covered in this unit.

G. Science Applications

Students in Wisconsin will demonstrate an understanding of the relationship between science and technology and the ways in which that relationship influences human activities.

G.4.1 A connection between electricity and jobs in La Crosse, Wisconsin should be made.

H. Science in Social and Personal Perspectives

Students in Wisconsin will use scientific information and skills to make decisions about themselves, Wisconsin, and the world in which they live.

H.4.1 Electricity and its many uses today have improved food preparation, information transfer, and transportation, and health care.

H.4.3 Electricity has contributed to meeting many personal needs.

Motion and Design

A. Science Connections

Students in Wisconsin will understand that there are unifying themes: (systems, order, organization, and interactions); (evidence, models, and explanations); (constancy, change, and measurement); (evolution, equilibrium, and energy); (form and function) among the scientific disciplines.

A.4.1 Students should be aware this is a physical science area.

A.4.2 Previous science investigations by students in 1st, 2nd, and 3rd grade have involved the use of the Scientific Method to solve problems, and are being used to study motion and design of a vehicle.

A.4.3 Investigating and designing a Special Purpose Vehicle requires data collection.

A.4.4 Designing the Special Purpose Vehicle involves the theme of form and function.

A.4.5 Students should be exposed to the history and development of vehicles.

B. Nature of Science

Students in Wisconsin will understand that science is ongoing and inventive, and that scientific understandings have changed over time as new evidence is found.

B.4.1 Students are encouraged to look for some other sources of information during the design introduced.

B.4.2 People such as Newton (Law of Motion), Ford (vehicle production) should be introduced.

B.4.3 History of knowledge of force, friction, and engines should be included.

C. Science Inquiry

Students in Wisconsin will investigate questions using scientific methods and tools, revise their personal understanding to accommodate knowledge, and communicate these understandings to others.

C.4.1 Exploration involving vehicle design require students to understand the science themes of form and function; evidence, models, and explanations; and constancy, change, and measurement.

C.4.2 Building and designing a vehicle requires planning, observations, predictions, and explanations.

C.4.3 Students should be encouraged to find information from outside sources during the final project.

C.4.4 Students use stop watches and rulers/tapes.

C.4.5 Students explain the timed students with wood blocks.

C.4.6 Students graph the results of their timed investigations.

C.4.7 Student explanations and data should support conclusions.

C.4.8 Students should be curious about alternative designs for cars.

D. Physical Science

Students in Wisconsin will demonstrate an understanding of the physical and chemical properties of matter, the forms and properties of energy, and the ways in which matter and energy interact.

D.4.4 The motion of the car changes based on the forces involved.

D.4.5 Different designs and forces influence motion of the car.

D.4.6 Students construct vehicles of different designs and observe their motion.

D.4.7 Students perform timed investigations involving different forces and collect appropriate data.

E. Earth and Space Science

Students in Wisconsin will demonstrate an understanding of the structure and systems of the earth and other bodies in the universe and their interactions.

Not covered in this unit.

F. Life and Environmental Science

Students in Wisconsin will demonstrate an understanding of the characteristics and structures of living things, the processes of life, and how living things interact with one another and their environment.

Not covered in this unit.

G. Science Applications

Students in Wisconsin will demonstrate an understanding of the relationship between science and technology and the ways in which that relationship influences human activities.

G.4.4 Constructing vehicles using wheel and axle.

H. Science in Social and Personal Perspectives

Students in Wisconsin will use scientific information and skills to make decisions about themselves, Wisconsin, and the world in which they live.

H.4.1 Describe how science and technology have helped the progress of faster, safer and more efficient transportation.

H.4.2 Transportation issues involving science themes such as energy, form and function, systems and interactions as related to environmental impact.

4th Grade

Plant Growth and Development

Plant Growth and Development – All 4th grade classrooms have been sent a light system for this unit. Some of the schools did not get a light system for their 4/5 combination class, they will have to share.

The Mustard plant is a weed that can overpopulate in this area, please don't throw seeds away so that this plan takes over.

Seeds should be saved and can be used by the next teacher using the kit.

Electric Circuit

Note – Each kit now has a battery tester. As a heads-up, these are quite small, and could walk off. If you find a battery that is bad, please label it and send it back to Carol so that it can be disposed of appropriately.

Science Education WEB Sites

Science Education (Index heading from Todd Wehr Memorial Library, Viterbo College
<http://www.viterbo.edu/academic/as/library/mainpag.htm>)

Science Education Standards and References (Sub Heading 1)

National Science Standards <http://www.nap.edu/readingroom/books/nses>

National Academy Press <http://www.nap.edu>

Project-Based Science (PBS) <http://www.umich.edu/~pbsgroup/index.html>

NSTA Pathways Reference Sites

Science as Inquiry <http://www.oms.edu/sln/www/background/inquiry>

<http://webfoot2.oms.edu>

Physical Science http://www.gene.com/ae/AE/AEC/AEF/1996/thompson_jell-0.html

http://www.etc.bc.ca/apase/scitech/p_sci.html

Life Science <http://www.gene.com/ae/AE>

<http://www.gene.com/atg-bin/pphtml/ae/atg/index.pphtml>

Earth and Space Science <http://athena.wednet.edu/curric/space/index.html>

<http://vulcan.wr.usgs.gov/Photo/framework.html>

The Learning WEB <http://www.usgs.gov/education>

Science and Technology <http://sln.fi.edu/tfi/activity/act-summ.html>

<http://ofcn.org/cyber.serv/academy/ace/sci/cecsci/cecsci017.html>

Mini Lessons <http://ofcn.org/cyber.serv/academy/ace/sci/elem.html>

Personal & Social Perspec. <http://www.gene.com/ae/AE/AEC/AEF/1996drake.html>

<http://www.zpg.org/zpg/popquiz.html>

History of Science <http://weber.u.washington.edu/~mudrock/HISTORY/science.html>
<http://www.minnetonka.k12.mn.us/support/science/good.html>

Science Education Groups (Sub-Heading 2)

NSTA <http://www.nsta.org>
NAS <http://www.nas.edu>
NSRC/STC <http://www.si.edu/nsrc>
TERC <http://www.terc.edu>
AIMS <http://www.aimsedu.org>
ACS <http://www.acs.org>
FOSS <http://www.ebec.com/ebechp.htm>

Children's Sites (Sub-Heading 3)

KIDS WEB Digital Library <http://www.npac.syr.edu/textbook/kidsweb>
Project DRAGONFLY <http://www.muohio.edu/Dragonfly>
Cool Sites from NAP <http://www.nap.edu/fresh/hot/links.html>
Cool Sites for La Crosse Schools
 <http://www.viterbo.edu/personalpages/faculty/Rruppel/emerson/emerson.html>
Nine Planets Exploration Site <http://seds.lpl.arizona.edu/nineplanets/nineplanets.html>
The Thinking Fountain <http://www.sci.mus.mn.us/sln/tf/nav/thinkingfountain.html>

Teacher Enhancement Sites (Sub-Heading 4)

NAS/NAE/NRC Publications	http://www2.nas.edu/wwwcat/Education.html
NSTA Online Resources	http://www.nsta.org/onlineresources
ACS Science Education	http://www.acs.org/edugen2/education/aboutedu.htm
U. of Michigan Virtual Library	http://ipl.sils.umich.edu
U. of Michigan Digital Library	http://http2/sils.umich.edu/UMDL/HomePage.html
Galaxy Professional Resource	http://www.einet.net/galaxy/Science.html
Penn State	http://jek113.rh.psu.edu

**School District of La Crosse
Science Department
Hands-On Science Kit Request Form**

Please fill out request form to order science kits. Return to Carol Guanella at Hogan. A copy will be sent back to you for confirmation.

School Name _____

Teacher Name(s) _____

Unit/Kit _____

Grade _____

Number of Kits _____

Desired Dates 1) From: _____ To: _____

(3 CHOICES) 2) From: _____ To: _____

 3) From: _____ To: _____

.....
DATE REQUEST RECEIVED _____

CONFIRMED _____

KIT NUMBER(S) _____

APPROXIMATE DATE AVAILABLE _____

SUBMIT KIT REQUEST TO CAROL GUANELLA – HOGAN ADMIN. CENTER
PHONE NUMBER – 789-7677

ALLOW AT LEAST ONE WEEK BEFORE REQUESTED DELIVERY DATE

RETURN KIT TO YOUR DESIGNATED AREA FOR PICK-UP WHEN COMPLETED

PLEASE INDICATE THE MATERIALS WHICH MUST BE REPLENISHED

THANKS FOR YOUR COOPERATION