



A Correlation of the  
**Science and Technology  
for Children™ Curriculum**  
to the  
**Maine Learning Results for  
Science and Technology**

Prepared by

 **Carolina Biological Supply Company**

Working Together To Be The Most Valued  
Teammate Of Every Science Educator

# A Correlation of the Science and Technology for Children™ Curriculum to the Maine Learning Results for Science and Technology

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The following tables are provided to give a quick visual guide to the correlation of the Science and Technology for Children™ (STC™) units of study to the Maine Learning Results for Science and Technology. Since there is some flexibility in grade-level placement with the STC units, we suggest that you give consideration to units recommended for the grade level above and the grade level below the grade being considered. For example, in the K-2 benchmark, STC units from grades one, two, and three have been used in the correlation. The same flexibility in placement of units also applies to the other benchmarks. If a learning result is met by an STC unit that falls outside the grade range, it is indicated by an asterisk (\*). All fourth-grade through sixth-grade unit kits now include a Discovery Deck, a set of extensions for the unit. When the Discovery Deck meets or helps to meet a learning result, the abbreviation DD will follow the unit abbreviation.

### Key to STC™ Abbreviations

O Organisms	PGD Plant Growth and Development	Mw Microworlds
W Weather	RM Rocks and Minerals	E Ecosystems
SL Solids and Liquids	CT Chemical Tests	FC Food Chemistry
CM Comparing and Measuring	So Sound	FS Floating and Sinking
LCB The Life Cycle of Butterflies	AS Animal Studies	EP Experiments with Plants
S Soils	LW Land and Water	MT Measuring Time
C Changes	EC Electric Circuits	MM Magnets and Motors
BW Balancing and Weighing	MD Motion and Design	TP The Technology of Paper
DD Discovery Deck		

### Recommended Grade Levels for STC™ Units

The National Science Resources Center (NSRC) recommends that an STC unit not be moved up or down more than one grade level from these recommendations.

1 <sup>st</sup>				2 <sup>nd</sup>				3 <sup>rd</sup>			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
4 <sup>th</sup>				5 <sup>th</sup>				6 <sup>th</sup>			
AS	LW	EC	MD	Mw	E	FC	FS	EP	MT	MM	TP

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## *Science and Technology*

<p><b>A. CLASSIFYING LIFE FORMS</b>          Students will understand that there are similarities within the diversity of all living things.          Students will be able to:</p>	
<b>Learning Result</b>	<b>STC unit(s)</b>
<p><b>ELEMENTARY GRADES Pre-K-2</b></p> <ul style="list-style-type: none"> <li>Identify the differences between living and non_living things.</li> <li>Describe characteristics of different living things.</li> <li>Explain, draw, or otherwise demonstrate the life cycle of an organism.</li> <li>Design and describe a classification system for objects.</li> </ul>	<p>O            O, S, LCB, PGD            O, LCB, PGD            W, SL</p>
<p><b>ELEMENTARY GRADES 3-4</b></p> <ul style="list-style-type: none"> <li>Group the same organisms in different ways using different characteristics.</li> <li>Design and describe a classification system for organisms.</li> <li>Describe the different living things within a given habitat.</li> <li>Compare and contrast the life cycles, behavior, and structure of different organisms.</li> </ul>	<p>AS, AS DD, E, E DD            LCB, PGD, AS, AS DD, Mw,            Mw DD, E, E DD</p>
<p><b>MIDDLE GRADES 5-8</b></p> <ul style="list-style-type: none"> <li>Compare systems of classifying organisms including systems used by scientists.</li> <li>Decipher the system for assigning a scientific name to every living thing.</li> <li>Describe some structural and behavioral adaptations that allow organisms to survive in a changing environment.</li> </ul>	<p>AS, AS DD, E, E DD, EP</p>
<p><b>B. ECOLOGY</b>          Students will understand how living things depend on one another and on non-living aspects of the environment.          Students will be able to:</p>	
<b>Learning Result</b>	<b>STC unit(s)</b>
<p><b>ELEMENTARY GRADES Pre-K-2</b></p> <ul style="list-style-type: none"> <li>Identify ways that organisms depend upon their environment.</li> <li>Describe how almost all animals' food can be traced back to plants.</li> <li>Give examples of how one change in a system affects other parts of the system.</li> <li>Describe different ecological systems on earth.</li> <li>Describe a familiar local environment.</li> </ul>	<p>O, LCB, S, PGD            O, LCB            E*            S</p>

<p><b>ELEMENTARY GRADES 3-4</b></p> <p>Describe a food web and the relationships within a given ecosystem.</p> <p>Explain the difference between producers (e.g., green plants), consumers (e.g., those that eat green plants), and decomposers (e.g., bacteria that break down the “consumers” when they die), and identify examples of each.</p> <p>Compare and contrast physical and living components of different biomes - i.e., regions characterized by their climate and plant life - (e.g., tundra, rain forest, ocean, desert).</p> <p>Investigate the connection between major living and non_living components of a local ecosystem.</p>	<p>E, E DD</p> <p>E, E DD</p> <p>E</p>
<p><b>MIDDLE GRADES 5-8</b></p> <p>Describe in general terms the chemical processes of photosynthesis and respiration.</p> <p>Analyze how the finite resources in an ecosystem limit the types and populations of organisms within it.</p> <p>Describe succession and other ways that ecosystems can change over time.</p> <p>Generate examples of the variety of ways that organisms interact (e.g., competition, predator/prey, parasitism/mutualism).</p> <p>Describe various mechanisms found in the natural world for transporting living and non-living matter and the results of such movements.</p>	<p>E</p>
<p><b>C. CELLS</b>  Students will understand that cells are the basic units of life.  Students will be able to:</p>	
<p style="text-align: center;"><b>Learning Result</b></p>	<p style="text-align: center;"><b>STC unit(s)</b></p>
<p><b>ELEMENTARY GRADES Pre-K-2</b></p> <p>Demonstrate that living things are made up of different parts.</p> <p>Demonstrate an understanding that plants and animals need food, water, and gases to survive.</p> <p>Explore magnifying devices and how they allow one to see in more detail.</p> <p>Provide examples of causes of diseases.</p>	<p>O, LCB, S, PGD</p> <p>O, LCB, S, PGD</p> <p>O, LCB, S, PGD</p>
<p><b>ELEMENTARY GRADES 3-4</b></p> <p>Demonstrate an understanding that a cell is the basic unit of living organisms.</p> <p>Describe how single_celled organisms exist.</p> <p>Explore how the use of a microscope allows one to see cells in a variety of organisms.</p> <p>Describe the functions of the major human organ systems.</p>	<p>Mw</p> <p>Mw, Mw DD</p> <p>Mw, Mw DD</p>
<p><b>MIDDLE GRADES 5-8</b></p> <p>Compare and contrast human organ systems with those of other species.</p>	

<p>Prepare and examine microscope slides of single-celled and multi-celled organisms.</p> <p>Describe the structure and function of major organs in human systems.</p> <p>Identify the causes and effects of diseases, explain their transmission, and identify prevention strategies.</p> <p>Describe how body systems work together.</p>	<p>Mw (single-celled organisms only)</p> <p>FC, FC DD</p>
<p><b>D. CONTINUITY AND CHANGE</b></p> <p>Students will understand the basis for all life and that all living things change over time.</p> <p>Students will be able to:</p>	
<b>Learning Result</b>	<b>STC unit(s)</b>
<b>ELEMENTARY GRADES Pre-K-2</b>	
<p>Explain how fossils show the existence of past life.</p> <p>Identify characteristics that help organisms live in their environment.</p> <p>Draw or describe ways in which an organism can change over its lifetime, sometimes in predictable ways (e.g., butterfly, frog).</p> <p>Describe ways in which individuals of the same species are alike and different.</p>	<p>O, S, LCB, PGD</p> <p>O, LCB, PGD</p> <p>O, LCB, PGD</p>
<b>ELEMENTARY GRADES 3-4</b>	
<p>Identify present day organisms that have not always existed, and past life forms that have become extinct.</p> <p>Describe how fossils form.</p> <p>Explain how adaptations, in response to change over time, may increase a species' chances of survival.</p> <p>Describe ways in which organisms may be similar to and different from their parents and explore the possible reasons for this.</p>	<p>RM</p> <p>LCB, PGD, AS, AS DD, E, E DD</p>
<b>MIDDLE GRADES 5-8</b>	
<p>Describe how fossils can be used by scientists to trace the history of a species.</p> <p>Explain how scientists use fossils to prove that life forms, climate, environment, and geologic features in a certain location are not the same now as they were in the past.</p> <p>Provide examples of the concept of natural and artificial selection and its role in species changes over time.</p> <p>Compare how sexually and asexually reproducing species transfer genetic information to offspring.</p>	<p>Mw DD</p>
<p><b>E. STRUCTURE OF MATTER</b></p> <p>Students will understand the structure of matter and the changes it can undergo.</p> <p>Students will be able to:</p>	
<b>Learning Result</b>	<b>STC unit(s)</b>
<b>ELEMENTARY GRADES Pre-K-2</b>	
<p>Show that large things are made up of smaller pieces.</p> <p>Describe some physical properties of objects.</p>	<p>All STC units</p>

Group objects based on observable characteristics (e.g., color, size, texture).	W, SL, CM, S, BW, RM, CT
<b>ELEMENTARY GRADES 3-4</b> Describe how the physical properties of objects sometimes change when one object chemically combines with another. Explain how matter changes in both chemical and physical ways.	C, CT, FC C, PGD, CT, AS, LW, E, FC
<b>MIDDLE GRADES 5-8</b> Predict and test whether objects will float or sink based on a qualitative and quantitative understanding of the concepts of density and buoyancy. Describe the evidence that all matter consists of particles called atoms that are made up of certain smaller particles. Use the Periodic Table to group elements based on their characteristics. Describe how a substance can combine with different substances in different ways, depending on the conditions and the properties of each substance. Describe how the motion of the particles of matter determines the state of that matter (e.g., solid, liquid, gas, plasma) and vice versa. Explain how the relatively small number of naturally occurring elements can result in the large variety of substances found in the world. Investigate the similarities and differences between elements, compounds, and mixtures. Demonstrate the law of conservation of matter.	FS
<b>F. THE EARTH</b> Students will gain knowledge about the earth and the processes that change it. Students will be able to:	
<b>Learning Result</b>	<b>STC unit(s)</b>
<b>ELEMENTARY GRADES Pre-K-2</b> Describe the way weather changes. Analyze the relationships between observable weather patterns and the cycling of the seasons. Observe changes that are caused by water, snow, wind, and ice.	W RM
<b>ELEMENTARY GRADES 3-4</b> Describe the change in position of the continents over time. Demonstrate an understanding that many things about the earth (e.g., climate) occur in cycles that vary in length and frequency. Describe differences among minerals, rocks, and soils. Illustrate how water and other substances go through a cyclic process of change in the environment.	LW, LW DD, E, E DD S, RM LW, LW DD, E, E DD

<p><b>MIDDLE GRADES 5-8</b></p> <p>Demonstrate how the earth’s tilt on its axis results in the seasons.</p> <p>Describe how soils are formed and why soils differ from one place to another.</p> <p>Explain the evidence scientists use when they give the age of the earth.</p> <p>Describe factors that can cause short-term and long-term changes to the earth.</p> <p>Classify and identify rocks and minerals based on their physical and chemical properties, their composition, and the processes which formed them.</p> <p>Describe the many products used by humans that are derived from materials in the earth’s crust.</p> <p>Demonstrate factors affecting the flow of groundwater.</p>	<p>LW, LW DD</p> <p>AS DD, LW, LW DD, E, E DD, EP DD</p> <p>RM*</p> <p>LW, LW DD, EP DD</p> <p>LW, LW DD</p>
<p><b>G. THE UNIVERSE</b></p> <p>Students will gain knowledge about the universe and how humans have learned about it, and about the principles upon which it operates.</p> <p>Students will be able to:</p>	
<p><b>Learning Result</b></p>	<p><b>STC unit(s)</b></p>
<p><b>ELEMENTARY GRADES Pre-K-2</b></p> <p>Explain the cycles of day/night and of seasons.</p> <p>Demonstrate that shadows of objects change based on where light is coming from.</p> <p>Demonstrate an understanding that the sun is one of many stars in the universe and is the closest star to earth.</p>	<p>MT* (day/night only)</p> <p>MT*</p>
<p><b>ELEMENTARY GRADES 3-4</b></p> <p>Illustrate the relative positions of the sun, moon, and planets.</p> <p>Trace the sources of earth’s heat and light energy to the sun.</p> <p>Describe earth’s rotation on its axis and its revolution around the sun.</p> <p>Explore the relationship between the earth and its moon.</p>	<p>MT* (sun/moon only), MT* DD (sun/moon only)</p> <p>LW, LW DD, E, E DD</p> <p>MT*, MT DD*</p>
<p><b>MIDDLE GRADES 5-8</b></p> <p>Compare past and present knowledge about characteristics of stars (e.g., composition, location, lifecycles) and explain how people have learned about them.</p> <p>Describe the concept of galaxies, including size and number of stars.</p> <p>Compare and contrast distances and the time required to travel those distances on earth, in the solar system, in the galaxy, and between galaxies.</p> <p>Describe scientists’ exploration of space and the objects they have found (e.g., comets, asteroids, pulsars).</p> <p>Describe the motions of moons, planets, stars, solar systems, and galaxies.</p>	



Describe and quantify the ways machines can provide mechanical advantages in producing motion.	
<b>J. INQUIRY AND PROBLEM SOLVING</b>	
Students will apply inquiry and problem-solving approaches in science and technology. Students will be able to:	
<b>Learning Result</b>	<b>STC unit(s)</b>
<b>ELEMENTARY GRADES Pre-K-2</b>	
Make accurate observations using appropriate tools and units of measure.	All STC units
Ask questions and propose strategies and materials to use in seeking answers to questions.	All STC units
Use results in a purposeful way, which includes making predictions based on patterns they have observed.	W, SL, CM, LCB, C, BW, PGD, CT
Identify products which were invented to solve a problem.	W, So
<b>ELEMENTARY GRADES 3-4</b>	
Make accurate observations using appropriate tools and units of measure.	All STC units
Conduct scientific investigations: make observations, collect and analyze data, and do experiments.	All STC units
Use results in a purposeful way: design fair tests, make predictions based on observed patterns, and interpret data to make further predictions.	LCB, C, BW, PGD, CT, AS, LW, EC, MD, E, FC, FS
Design and build an invention.	So, EC, MD, FS
Explain how differences in time, place, or experimenter can lead to different data.	
Explain how different conclusions can be derived from the same data.	AS, LW, EC, MD, E, FC, FS
<b>MIDDLE GRADES 5-8</b>	
Make accurate observations using appropriate tools and units of measure.	All STC units
Design and conduct scientific investigations which include controlled experiments and systematic observations. Collect and analyze data, and draw conclusions fairly.	E, FC, EP, MT, MM, TP
Verify and evaluate scientific investigations and use the results in a purposeful way.	All STC units
Compare and contrast the processes of scientific inquiry and the technological method.	
Explain how personal bias can affect observations.	
Design, construct, and test a device (invention) that solves a special problem.	EC, MD, MT
<b>K. SCIENTIFIC REASONING</b>	
Students will learn to formulate and justify ideas and to make informed decisions. Students will be able to:	

Learning Result	STC unit(s)
<p><b>ELEMENTARY GRADES Pre-K-2</b></p> <p>Examine strengths and weaknesses of simple arguments.</p> <p>Distinguish between important and unimportant information in simple arguments.</p> <p>Make observations.</p> <p>Participate in brainstorming activities.</p> <p>Use various forms of simple logic.</p> <p>Discover relationships and patterns.</p>	<p>All STC units</p> <p>All STC units</p> <p>LCB, BW, PGD, So</p>
<p><b>ELEMENTARY GRADES 3-4</b></p> <p>Give alternative explanations for observed phenomena.</p> <p>Describe how feelings can distort reasoning.</p> <p>Draw conclusions about observations.</p> <p>Use various types of evidence (e.g., logical, quantitative) to support a claim.</p> <p>Demonstrate an understanding that ideas are more believable when supported by good reasons.</p> <p>Practice and apply simple logic, intuitive thinking, and brainstorming.</p>	<p>AS, LW, EC, MD, E, FC, FS</p> <p>All STC units</p> <p>All STC units</p> <p>All STC units</p> <p>All STC units</p>
<p><b>MIDDLE GRADES 5-8</b></p> <p>Examine the ways people form generalizations.</p> <p>Identify exceptions to proposed generalizations.</p> <p>Identify basic informal fallacies in arguments.</p> <p>Analyze means of slanting information.</p> <p>Identify stereotypes.</p> <p>Support reasoning by using a variety of evidence.</p> <p>Show that proving a hypothesis false is easier than proving it true, and explain why.</p> <p>Construct logical arguments.</p> <p>Apply analogous reasoning.</p>	<p>All STC units</p> <p>AS, LW, EC, MD, E, FC, FS, EP, MT, MM, TP</p>
<p><b>L. COMMUNICATION</b></p> <p>Students will communicate effectively in the application of science and technology.</p> <p>Students will be able to:</p>	
Learning Result	STC unit(s)
<p><b>ELEMENTARY GRADES Pre-K-2</b></p> <p>Describe and compare things in terms of number, shape, texture, size, weight, color, and behavior.</p> <p>Read and write instructions to be followed or instructions which explain procedures.</p> <p>Ask clarifying questions.</p> <p>Explain problem-solving processes using verbal, pictorial, and written methods.</p>	<p>All STC units</p> <p>All STC units (read only)</p> <p>All STC units</p> <p>All STC units</p>

<p>Make and read simple graphs.</p> <p>Use objects and pictures to represent scientific and technological ideas.</p>	<p>O, W, CM, BW, PGD, So</p> <p>O, W, SL, CM, LCB, S, C, BW, PGD, So</p>
<p><b>ELEMENTARY GRADES 3-4</b></p> <p>Record results of experiments or activities (e.g., interviews, discussions, fieldwork) and summarize and communicate what they have learned.</p> <p>Ask clarifying and extending questions.</p> <p>Reflect on work in science and technology using such activities as discussions, journals, and self-assessment.</p> <p>Make and/or use sketches, tables, graphs, physical representations, and manipulatives to explain procedures and ideas.</p> <p>Gather and effectively present information, using a variety of media including computers (e.g., spreadsheets, word processing, programming, graphics, modeling).</p> <p>Cite examples of bias in information sources and question the validity of information from varied sources.</p> <p>Function effectively in groups within various assigned roles (e.g., reader, recorder).</p>	<p>All STC units</p> <p>All STC units</p> <p>All STC units</p> <p>All STC units</p> <p>Compatible with all STC units</p> <p>All STC units</p>
<p><b>MIDDLE GRADES 5-8</b></p> <p>Discuss scientific and technological ideas and make conjectures and convincing arguments.</p> <p>Defend problem-solving strategies and solutions.</p> <p>Evaluate individual and group communication for clarity, and work to improve communication.</p> <p>Make and use scale drawings, maps, and three-dimensional models to represent real objects, find locations, and describe relationships.</p> <p>Access information at remote sites using telecommunications.</p> <p>Identify and perform roles necessary to accomplish group tasks.</p>	<p>All STC units</p> <p>LW, EC, MD, E, EP, MT, MM, TP</p> <p>AS, LW, EC, MD, Mw, E, MT, MM</p> <p>Compatible with all STC units</p> <p>All STC units</p>
<p><b>M. IMPLICATIONS OF SCIENCE AND TECHNOLOGY</b></p> <p>Students will understand the historical, social, economic, environmental, and ethical implications of science and technology.</p> <p>Students will be able to:</p>	
<p style="text-align: center;"><b>Learning Result</b></p>	<p style="text-align: center;"><b>STC unit(s)</b></p>
<p><b>ELEMENTARY GRADES Pre-K-2</b></p> <p>Describe how legends, stories, and scientific explanations are different ways in which people attempt to explain the world.</p> <p>Describe at least two inventions, what they do, how they work, and how they have made life easier.</p> <p>Identify commonly used resources, their sources, and where waste products go.</p> <p>Demonstrate some practices for recycling and care of resources.</p>	<p>W, BW, So</p> <p>SL, S, RM</p> <p>SL, S</p>

<p>Explain how their lives would be different without specific inventions or scientific knowledge.</p>	<p>All STC units</p>
<p><b>ELEMENTARY GRADES 3-4</b></p> <p>Explore how cultures have found different technological solutions to deal with similar needs or problems (e.g., construction, clothing, agricultural tools and methods).</p> <p>Investigate and describe the role of scientists and inventors.</p> <p>Explore how technology (e.g., transportation, irrigation) has altered human settlement.</p> <p>Explain practices for conservation in daily life, based on a recognition that renewable and non-renewable resources have limits.</p>	<p>All STC units and all Discovery Decks</p> <p>S, LW, EC DD</p>
<p><b>MIDDLE GRADES 5-8</b></p> <p>Research and evaluate the social and environmental impacts of scientific and technological developments.</p> <p>Describe the historical and cultural conditions at the time of an invention or discovery, and analyze the societal impacts of that invention.</p> <p>Discuss the ethical issues surrounding a specific scientific or technological development.</p> <p>Describe an individual’s biological and other impacts on an environmental system.</p> <p>Identify factors that have caused some countries to become leaders in science and technology.</p> <p>Give examples of actions which may have expected or unexpected consequences that may be positive, negative, or both.</p> <p>Explain the connections between industry, natural resources, population, and economic development.</p> <p>Recognize scientific and technological contributions of diverse people including women, different ethnic groups, races, and physically disabled.</p>	<p>AS DD, LW, LW DD, EC, EC DD, MD, MD DD, Mw DD, E, E DD, FC, FC DD, FS, FS DD, EP DD, MT, MT DD, MM, MM DD, TP, TP DD</p> <p>AS DD, EC DD, MD DD, Mw, Mw DD, FS, FS DD, MT, MT DD, MM, MM DD, TP, TP DD</p> <p>E, E DD</p> <p>E</p> <p>LW, LW DD, EC DD, Mw DD, E, E DD, FC, FS, EP DD, MM DD, TP, TP DD</p> <p>LW DD, E, E DD, EP DD, TP DD</p> <p>All STC units and all Discovery Decks</p>