

A Correlation of the BENCHMARKS for Science Literacy and the Science and Technology for Children™ Curriculum

Prepared by Carolina Biological Supply Company

The following tables are provided to give a quick visual guide to the correlation of the BENCHMARKS for Science Literacy with the individual *Science and Technology for Children*™ (STC™) units of study. In many cases we have slightly condensed the wording of the BENCHMARKS to fit the table format. This should not be taken to mean that we are changing or altering the BENCHMARK itself. For a full statement of the BENCHMARKS, refer to an appropriate publication of Project 2061. Since there is some flexibility in grade-level placement with the STC units, we have placed STC units for grades 1 through 3 under the BENCHMARKS Kindergarten through Grade 2 headings. Also, we are showing STC units for grade 6 under the BENCHMARKS Grades 3 through 6 headings. If a BENCHMARK is met by an STC unit that falls outside this grade range, it is indicated by an * and accompanying note.

Key to Abbreviations of STC Units

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	MD	Motion and Design	TP	The Technology of Paper
BW	Balancing and Weighing	EC	Electric Circuits	MM	Magnets and Motors

1 THE NATURE OF SCIENCE

1A The Scientific World View

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
Repeating a science investigation yields a very similar result	•	•	•	•	•	•	•	•	•	•	•	•
Science investigations generally work the same way in different places	•	•	•	•	•	•	•	•	•	•	•	•

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
Repeated results are seldom exactly the same	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

1B Scientific Inquiry

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
People can often learn about things around them by observing carefully	•	•	•	•	•	•	•	•	•	•	•	•
Tools such as thermometers, magnifiers often give more information about things	•	•	•	•	•			•	•	•		
Describing things as accurately as possible is important in science	•	•	•	•	•	•	•	•	•	•	•	•
When people give different descriptions, make some fresh observations	•	•	•	•	•	•	•	•	•	•	•	•

Grades 3 through 6

Scientific investigations may take many different forms
 Results of scientific investigations are seldom exactly the same
 Scientists' explanations come from what they observe, and from what they think
 Claims are backed up with evidence that can be confirmed and with logical argument

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PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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1c The Scientific Enterprise

Kindergarten through Grade 2

Everybody can do science and invent things and ideas
 In doing science, it is often helpful to work with a team and to share findings
 Care must be taken to know the needs of living things in the classroom

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O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
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Grades 3 through 6

Science is an adventure in which people everywhere can take part
 Clear communication is an essential part of doing science
 Doing science involves men and women of all ages and backgrounds

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PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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2 THE NATURE OF MATHEMATICS

2A Patterns and Relationships

Kindergarten through Grade 2

Circles, squares, triangles, etc. can be found in nature and in things that people build
 Patterns can be made by putting different shapes together or taking them apart
 Things can be made to move, in straight, curved, circular, back-and-forth, and jagged paths

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O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
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Grades 3 through 6

Mathematics is the study of patterns (numbers, shapes, etc.) and operations on them
 Mathematical ideas can be represented concretely, graphically, and symbolically

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PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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2B Mathematics, Science, and Technology No Benchmarks for Kindergarten through Grade 5

2C Mathematical Inquiry

Kindergarten through Grade 2

Numbers and shapes can be used to tell about things

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O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
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Grades 3 through 6

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PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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Numbers and shapes help to describe and predict things about the world

In using mathematics, choices have to be made about what operations are best

3 THE NATURE OF TECHNOLOGY

3A Technology and Science

Kindergarten through Grade 2

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O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
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Tools are used to do things better or more easily. To observe, measure, and make things

When trying to build something or to get something to work better, follow directions

Grades 3 through 6

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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Throughout history, people everywhere have invented and used tools

Technology enables scientists and others to observe and study things

Instruments can be used to gather information and for design and construction

Technology extends the ability of people to cut, shape, or put together materials

3B Design and Systems

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
People can use objects and ways of doing things to solve problems
People may not be able to actually make or do everything that they can design												.

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
Designs that are best in one respect may be inferior in other ways			
Even a good design may fail			
The solution to one problem may create other problems						

3C Issues in Technology

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
People are always inventing new ways to solve problems and get work done
When people want to build or try something new, they should consider affects on others												

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
Technology is an intrinsic part of human culture	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Any invention is likely to lead to other inventions								•						•	•	•
Transportation and other technologies give access today to what once were luxuries								•						•	•	•

4 THE PHYSICAL SETTING

4A The Universe

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
There are more stars in the sky than anyone can easily count												
The sun can be seen only in the daytime, but the moon can be seen at night and during the day		•										
The moon looks a little different every day, but looks the same again about every four weeks*												

* Covered in the sixth grade STC unit *Measuring Time*

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
The patterns of stars in the sky stay the same																
Telescopes magnify the appearance of some distant objects in the sky																
Planets change their positions against the background of stars																
The earth is one of the planets and orbits the sun. The moon orbits around the earth														•		
Stars are like the sun, some being smaller and some larger, but very far away																

4B The Earth

Kindergarten through Grade 2

Some events in nature (seasons) have a repeating pattern
 Water can be a liquid or a solid and can go back and forth from one form to the other
 Water left in an open container disappears, but water in a closed container does not disappear

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O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
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Grades 3 through 6

Things on or near the earth are pulled toward it by the earth's gravity
 Like all planets and stars, the earth is approximately spherical in shape
 When liquid water disappears, it turns into a gas (vapor) in the air
 Air is a substance that surrounds us, takes up space, and we feel as wind

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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4C Processes That Shape The Earth

Kindergarten through Grade 2

Chunks of rocks come in many sizes and shapes
 Change is something that happens to many things
 Animals and plants sometimes cause changes in their surroundings

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Grades 3 through 6

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	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
Waves, wind, water, and ice shape and reshape the earth's land surface						•										
Rock is composed of different combinations of minerals		•				•										

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
Objects can be described in terms of the materials they are made of and physical properties	•		•	•	•	•	•	•	•	•	•	
Things can be done to materials to change some of their properties							•				•	•

Grades 3 through 6

	3			4				5				6				
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
Heating and cooling cause changes in the properties of materials			•													
The weight of an assembled object is the same as the sum of the parts																
Materials may be composed of parts that are too small to be seen	•	•	•						•							
A new material made by combining two or more materials, has new properties			•												•	

4E Energy Transformations

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
The sun warms the land, air, and water		•										

Grades 3 through 6

	3			4				5				6				
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
Things that give off light often also give off heat			•				•	•								
Warmer things lose heat and cooler ones gain it*																

Some materials conduct heat much better than others

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* Covered in the second grade STC unit *Weather*

4F Motion

Kindergarten through Grade 2

Things move in many different ways, such as straight, zigzag, etc.
 The way to change how something is moving is to give it a push or a pull
 Things that make sound vibrate

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Grades 3 through 6

Changes in speed or direction of motion are caused by forces
 How fast things move differs greatly

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4G Forces of Nature

Kindergarten through Grade 2

Things near the earth fall to the ground unless something holds them up
Magnets can be used to make some things move without being touched

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Grades 3 through 6

The earth's gravity pulls any object toward it without touching it
Without touching them, a magnet pulls on all things made of iron

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5 THE LIVING ENVIRONMENT

5A Diversity of Life

Kindergarten through Grade 2

Some organisms are alike in appearance and in what they do, and others are very different
Plants and animals have features that help them live in different environments
Stories sometimes give plants and animals attributes they really do not have

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Grades 3 through 6

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PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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Organisms can be sorted into groups in many ways

Features used for grouping depend on the purpose of the grouping

5B Heredity

Kindergarten through Grade 2

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There is variation among individuals of one kind within a population

Offspring are very much, but not exactly, like their parents and like one another

Grades 3 through 6

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PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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Some likeness between children and parents are inherited

There must be a reliable way to transfer information from one generation to the next

5C Cells

Kindergarten through Grade 2

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Magnifiers help people see things they could not see without them

Most living things need water, food, and air

Grades 3 through 6

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PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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Some living things consist of a single cell

Microscopes make it possible to see that living things are made mostly of cells

5D Interdependence of Life

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
Animals eat plants or other animals for food	•				•							
Living things are found almost everywhere in the world	•				•							

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
For any particular environment, some organisms survive well, some less well, etc.					•					•						
Insects and various other organisms depend on dead material for food*																
Organisms interact with one another in various ways	•				•					•			•			
Changes in an organism's habitat may be beneficial to it or harmful										•			•			
Most microorganisms do not cause disease, and many are beneficial																

* Covered in the second grade STC unit *Soils*

5E Flow of Matter and Energy

Kindergarten through Grade 2

Plants and animals both need water, and animals need to take in food. Plants need light
 Many materials can be recycled and used again, sometimes in different forms

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Grades 3 through 6

Almost all kinds of animals' food can be traced back to plants
 Some source of "energy" is needed for all organisms to stay alive and grow
 Over the whole earth, organisms are growing, dying, etc.

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PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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5F Evolution of Life

Kindergarten through Grade 2

Different organisms have external features that help them thrive in different kinds of places
 Some kinds of organisms that once lived on earth have completely disappeared

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O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
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Grades 3 through 6

Individuals differ in their characteristics, sometimes giving an advantage
 Fossils can be compared to one another and to living organisms

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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6 THE HUMAN ORGANISM

6A Human Identity

Kindergarten through Grade 2

People have different features, but they are more like one another than like other animals
 People need water, food, etc. just as other animals do
 People tend to live in families and communities in which individuals have different roles

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Grades 3 through 6

Unlike in humans, behavior in many species is determined by inheritance
 Humans have made tools and machines to help them sense and do things
 Artifacts and preserved remains provide evidence of people who lived long ago

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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6B Human Development

Kindergarten through Grade 2

All animals have offspring, usually with two parents involved
 A human baby grows inside its mother until its birth

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O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
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Grades 3 through 6

It takes about 9 months for a human embryo to develop
 Humans live longer than most other animals, but all living things die
 There is a usual sequence of physical and mental development among humans
 People are usually able to have children before they are able to care for them

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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6C Basic Functions

Kindergarten through Grade 2

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	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
The human body has parts that help it function	•			•	•							
Senses can warn about danger; muscles help to fight, hide, or get out of danger												
The brain enables humans to think and sends messages to other body parts												

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
From food, people obtain energy and materials for growth and repair											•					
By breathing, people take in the oxygen they need to live																
Skin protects the body from harmful substances, other organisms, and from drying																
The brain receives signals from and sends signals to all parts of the body																

6D Learning

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
People use their senses to find out about their surroundings and themselves	•	•	•	•	•	•	•	•	•	•	•	•
Some of the things people do must be deliberately learned												
People can learn from each other by telling and listening, showing and watching, etc.	•	•	•	•	•	•	•	•	•	•	•	•

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
Humans have different interests, motivations, skills, and talents																
Humans can use memories of past experiences to make judgments	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Many skills can be practiced until they become automatic																
Humans tend to repeat behaviors that feel good and avoid those that feel bad																
Learning means using what one already knows to make sense out of new experiences	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

6E Physical Health

Kindergarten through Grade 2

Eating a variety of foods and getting enough exercise and rest help people to stay healthy*
 Some things people take into their bodies from the environment can hurt them
 Some diseases are caused by germs, some are not

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So

* Covered in the fifth grade STC unit *Food Chemistry*

Grades 3 through 6

Food provides energy and materials for growth and repair of body parts
 Tobacco, alcohol, other drugs, and poisons in the environment can harm humans
 If germs are able to get inside one's body, they may keep it from working properly
 There are some diseases that humans can catch only once

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PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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6F Mental Health

STC does not directly address any of these Benchmarks

7 HUMAN SOCIETY

STC does not directly address any of these Benchmarks

8 THE DESIGNED WORLD

8A Agriculture

Kindergarten through Grade 2

Most food comes from farms either directly as crops or as the animals that eat the crops
 Part of a crop may be lost to pests or spoilage
 A crop that is fine when harvested may spoil before it gets to consumers
 Machines improve what people get from crops by helping in planting and harvesting

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
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								•			

Grades 3 through 6

Some plant varieties and animal breeds have more desirable characteristics
 The damage to crops by pests can be reduced by poisons, but they may cause harm
 Heating, etc. are ways to slow down the spoiling of food by microscopic organisms
 Modern technology has increased the efficiency of agriculture
 Places too cold or wet to grow certain crops can obtain food from places

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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Kindergarten through Grade 2

Some kinds of materials are better than others for making any particular thing
 Several steps are usually involved in making things
 Tools are used to help make things
 Some materials can be used over again

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
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Grades 3 through 6

Naturally occurring materials may be processed to change their properties
 Through technology, materials that do not appear in nature have become available
 Discarded products contribute to the problem of waste disposal
 Through mass production, both time and cost in making a product can be reduced

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
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8C Energy Sources and Use

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
People can save money by turning off machines when they are not using them												
People burn fuels or use electricity to cook their food and warm their houses												

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
Moving air and water can be used to run machines						•	•									•
The sun is the main source of energy for people						•										
Some energy sources cost less than others and some cause less pollution than others						•										
People conserve energy to slow down depletion of resources and/or to save money																

8D Communication

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
Information can be sent and received in many different ways												•
Devices can be used to send and receive messages quickly and clearly												•

Grades 3 through 6

	3				4				5				6				
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM	
People have always tried to communicate with one another				•												•	•
Communication involves coding and decoding information																	•
People have invented devices for recording information																•	•
Communication technologies make it possible to send and receive information				•													•

8E Information Processing STC does not directly address any of these Benchmarks

8F Health Technology STC does not directly address any of these Benchmarks

9 THE MATHEMATICAL WORLD

9A Numbers

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
Numbers can be used to count things, place them in order, or name them				•				•		•		
Sometimes in sharing or measuring there is a need to use numbers between whole numbers												
It is possible to estimate quantities without knowing them exactly		•		•				•				
Simple graphs can help to tell about observations		•		•	•			•	•			•

Grades 3 through 6

The meaning of numerals in many-digit numbers depends on their positions
 In some situations, "0" means none, but in others it may label a point on a scale
 When people care about what is being measured, they must say what the units are
 Measurements are always likely to give slightly different numbers

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
•											•		•		•
•											•	•			•
•			•								•	•	•		•
•			•								•	•			•

9B Symbolic Relationship

Kindergarten through Grade 2

Similar patterns may show up in many places
 Sometimes changing one thing causes changes in something else

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
						•	•	•		•	•

Grades 3 through 6

Mathematical statements using symbols may be true only with certain numbers
 Tables and graphs can show how values of one quantity are related to another

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
			•		•	•					•	•	•		•

9C Shapes

Kindergarten through Grade 2

Shapes such as circles, squares, and triangles can be used to describe many things

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
•											

Grades 3 through 6

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM

Length can be thought of as unit lengths joined together, etc.
 If 0 and 1 are located on a line, any other number can be positioned on the line
 Graphical display of numbers may make it possible to spot patterns
 Many objects can be described in terms of simple plane figures and solids
 Areas of irregular shapes can be found by dividing them into squares and triangles
 Scale drawings show shapes and compare locations of things very different in size

9D Uncertainty

Kindergarten through Grade 2

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So

Some things are more likely to happen than others
 Often a person can find out about a group of things by studying just a few of them

Grades 3 through 6

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM

Some predictions can be based on what is known about the past
 Statistical predictions are better for how many of a group will experience something
 Summary predictions are usually more accurate for large collections of events
 Spreading data out on a number line helps to see where the extremes are, etc.
 A small part of something may be special in some way and not apply to the whole

9E Reasoning

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
People are more likely to believe your ideas if you can give good reasons for them	•	•	•	•	•	•	•	•	•	•	•	•

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
One way to make sense of something is to compare it to something more familiar									•							
Reasoning can be distorted by strong feelings										•						

10 HISTORICAL PERSPECTIVES

10A Through 10J No benchmarks for Kindergarten through Grade 5

11 COMMON THEMES

11A Systems

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
Most things are made of parts					•	•	•	•	•	•	•	
Something may not work if some of its parts are missing								•				
When parts are put together, they can do things that they couldn't do by themselves								•				

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
In something that consists of many parts, the parts usually influence one another							•	•		•				•	•	•
Something may not work if a part of it is missing							•	•						•	•	•

11B Models

Kindergarten through Grade 2

	1				2				3			
	O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
Many of the toys children play with are like real things only in some ways												
A model of something is different from the real thing but can be used to learn		•			•				•			•
One way to describe something is to say how it is like something else										•		

Grades 3 through 6

	3				4				5				6			
	PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
Seeing how a model reacts to a change may suggest how the real thing would react				•		•	•	•		•		•				•
Geometric figures, etc. can be used to represent things in the real world	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

11c Constancy and Change

Kindergarten through Grade 2

Things change in some ways and stay the same in some ways
 People can keep track of some things, seeing where they come from and where they go
 Things can change in different ways. Some small changes can be detected by measurements
 Some changes are so slow or so fast that they are hard to see

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
•	•	•		•	•	•		•			•
	•	•		•	•	•		•			•
	•	•						•			
						•		•			

Grades 3 through 6

Some features of things may stay the same even when other features change
 Things change in steady, repetitive, or irregular ways

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
											•				
•					•				•			•	•	•	•

11D Scale

Kindergarten through Grade 2

Things in nature and things people make have very different sizes, weights, ages, and speeds

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
•		•	•			•	•	•			

Grades 3 through 6

Almost anything has limits on how big or small it can be
 Finding out the biggest and smallest possible values of something is important

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
•												•			

12 HABITS OF MIND

12A Values and Attitudes

Kindergarten through Grade 2

Raise questions about the world around them and seek answers by observation, etc.

¹				²				³			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
•	•	•	•	•	•	•	•	•	•	•	•

Grades 3 through 6

Keep records of their investigations and not change the records later
Offer reasons for their findings and consider reasons suggested by others

³				⁴				⁵				⁶			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

12B Computation and Estimation

Kindergarten through Grade 2

Use whole numbers, and simple, everyday fractions in ordering, counting, identifying, etc.
Readily give the sums and differences of single-digit numbers in familiar contexts
Give rough estimates of numerical answers to problems before doing them formally
Explain to other students how they go about solving numerical problems
Make quantitative estimates of familiar lengths, etc. and check them by measurement

¹				²				³			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
	•		•				•	•			•
	•										
			•				•				

Grades 3 through 6

- Add, subtract, etc. whole numbers mentally, on paper, and with a calculator
- Use fractions and decimals, translating when necessary between the two
- Judge whether quantities such as length, etc. are reasonable in a familiar context
- State the purpose of each step in a calculation
- Read and follow instructions in a manual when learning new procedures

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM

12c Manipulation and Observation

Kindergarten through Grade 2

- Use tools and simple instruments, and operate ordinary audio equipment
- Assemble, describe, take apart, and reassemble constructions
- Make something that can actually be used to perform a task
- Measure the length in whole units of objects having straight edges

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So

Grades 3 through 6

- Choose appropriate common materials for making simple mechanical constructions
- Measure and mix dry and liquid materials in prescribed amounts
- Keep a notebook that describes actual observations made
- Use calculators to determine area and volume, etc.
- Make safe electrical connections

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM

12D Communication Skills

Kindergarten through Grade 2

Describe and compare things in terms of number, shape, texture, size, etc.
 Draw pictures that correctly portray as least some features of the thing being described

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
•	•	•	•	•	•	•	•	•	•	•	
•	•		•	•	•		•	•			

Grades 3 through 6

Write instructions that others can follow in carrying out a procedure
 Make sketches to aid in explaining procedures or ideas
 Use numerical data in describing and comparing objects and events

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
•					•	•	•	•	•				•		
•			•			•		•			•	•	•	•	•

12E Critical-Response Skills

Kindergarten through Grade 2

Ask, "How do you know?" and attempt reasonable answers when asked the same question

1				2				3			
O	W	SL	CM	LCB	S	C	BW	PGD	RM	CT	So
•	•	•	•	•	•	•	•	•	•	•	•

Grades 3 through 6

Buttress their statements with facts and identify the sources used
 Recognize when comparisons might not be fair because conditions are not the same
 Seek better reasons for believing something

3				4				5				6			
PGD	RM	CT	So	AS	LW	MD	EC	Mw	E	FC	FS	EP	MT	TP	MM
									•			•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•