Geography studies in the Lower Primary include the topics of physical geography, political geography, globes, flags, landforms, and functional geography.

Specific Objectives for Lower Primary Geography

**Physical Geography**

* 1.00 Region
	+ 1.10 Biomes: polar, temperate forest, tropical forest, desert
	+ 1.20 Classifications:
		- Grasslands, wetlands, deserts, mountains, oceans, rainforests
* 2.00 Climate
	+ 2.10 Relationship between climate and region
	+ 2.20 Effect on life of man
* 3.00 Food & Shelter
	+ 3.10 How region affects food consumption
		- 3.10.1 Staples of region
		- 3.10.2 How and why food choices are made
		- 3.10.3 Foods as necessities, excess, and luxuries
		- 3.10.4 Imports and exports: what and why per region
	+ 3.20 Traditional shelters per region
		- 3.20.1 Relationship between shelter type and region
		- 3.20.2 How shelter is affected by weather, available materials, etc.
	+ 3.30 Flora: plant life per region
	+ 3.40 Fauna: animal and insect life per region

**Political Geography**

* 1.00 Population development
	+ 1.10 Growth: search for space and spiritual territory
	+ 1.20 How invasions and wars affect movement
	+ 1.30 How language develops and adapts in a region
* 2.00 Boundaries, territories, borders, and cities
	+ 2.10 Divisions of political regions, countries, states, provinces, etc.
	+ 2.20 How historic events can change boundaries
	+ 2.30 Cities
		- 2.30.1 Position and importance of cities
		- 2.30.2 Origins of particular cities
		- 2.30.3 Names and their meanings
		- 2.30.4 Capitals and when chosen or changed
	+ 2.40 Roads or passages
		- 2.40.1 Oldest roads and their importance
		- 2.40.2 Construction and historical development with available tools
* 3.00 Culture
	+ 3.10 Characteristics of peoples in the region
	+ 3.20 Customs and rituals per region
	+ 3.30 Costumes, clothing, crafts for dress and celebrations
	+ 3.40 Traditional food for region or culture

**Globe Skills**

* 1.00 Conceptual
	+ 1.10 What a map is? A bird’s eye view
	+ 1.20 Spherical globe to a flat map
	+ 1.30 Land vs water
* 2.00 Locators or markers
	+ 2.10 Identification of continents, oceans, mountain ranges
	+ 2.20 Latitude and longitude
	+ 2.30 Equator
	+ 2.40 Time zones

**Flags**

* 1.00 Parts of a flag
* 2.00 Shapes of flags
* 3.00 Flags in relationship to geographical location
* 4.00 Flags and music: national anthems of countries
* 5.00 Origins of flags

**Landforms**

* 1.00 Beginning landforms: lake, island, peninsula, gulf, isthmus, strait
* 2.00 Advanced landforms: mesa, valley, plateau, etc.
* 3.00 Parts of the earth
* 4.00 Parts of a mountain
* 5.00 Parts of a volcano
* 6.00 Parts of a river

**Functional Geography Experiments/Charts\***

* 1.00 Force of attraction
* 2.00 Centrifugal and centripetal forces
* 3.00 Forces of inertia and gravity
* 4.00 Hot air rises
* 5.00 Warm air goes up
* 6.00 Volcanism
* 7.00 Erosion
* 8.00 Air occupies space
* 9.00 Specific weight
* 10.00 Stratification of rocks
* 11.00 Formation of mountains
* 12.00 Fracture of the Earth’s crust
* 13.00 Solar energy
* 14.00 Illumination of the Earth and poles
* 15.00 Perpendicular and oblique rays
* 16.00 Bad and good heat conductors
* 17.00 Night and day
* 18.00 Obliquity of the polar axis
* 19.00 Marking off imaginary parallels
* 20.00 Seasons
* 21.00 Air-pressure
* 22.00 Rapidity of cooling
* 23.00 Origins of marine currents
* 24.00 Destruction of rocks
* 25.00 Expansion

\* These experiments are frequently combined with science activities. The interrelationship between any science concept and its practical relationship to geography is regularly stressed. For example, solar energy may be introduced as an energy concept in science, but the application of its uses in different regions of the world is readily reinforced.

Impressionistic charts depicting many of these concepts are utilized in teacher discussions.

Lower Primary history studies include the concept of time, the concept of history, the fundamental needs of mankind, the study of history, and the history of life.

**Specific Objectives for Lower Primary History**

**Concept of Time**

* 1.00 Timelines
	+ 1.10 BC/AD Timeline
		- 1.10.1 Concept of zero as starting point
		- 1.10.2 BC
		- 1.10.3 AD (usually presented w/o religious implications)
	+ 1.20 Personal timeline
	+ 1.30 Clock of Eras: History in clock form from creation of the earth
* 2.00 Measures of time
	+ 2.10 Reading calendars
	+ 2.20 Days of the week; months of the year
	+ 2.30 Year and its parts
	+ 2.40 Age of the earth
* 3.00 History and Grammar: classification of past, present, future

**Concept of History**

* 1.00 Fundamental needs of mankind
	+ 1.10 Spiritual needs
		- 1.10.1 Culture
		- 1.10.2 Religion
		- 1.10.3 Vanity
	+ 1.20 Material needs
		- 1.20.1 Food: from animals, vegetables, and inorganic material
		- 1.20.2 Clothing
			* 1.20.2a Animal products: Leather, silk, feathers, hair, fur, wool
			* 1.20.2b Vegetable products: Linen, cotton
		- 1.20.3 Shelter: iron, stone, wood
		- 1.20.4 Defense: iron, wood, gunpowder, stone
		- 1.20.5 Transportation: wood, animals, iron, petroleum
	+ 1.30 Individual and collective: want vs. need
* 2.00 Chart of material needs
* 3.00 Chart of the needs of man
* 4.00 Vertical presentation of history
* 5.00 Horizontal presentation of history

**Study of History**

* 1.00 History experiments: development of earth as a history
* 2.00 History of creation
* 3.00 Big bang theory lesson

**History of Life**

* 1.00 Timeline of life
	+ 1.10 Eras of time for animals
	+ 1.20 Eras of time for plants
	+ 1.30 Eras of time for people
* 2.00 Timeline of man
	+ 2.10 Meaning of man’s appearance
	+ 2.20 Society and civilizations

Lower Primary language studies include listening and speaking skills, reading skills, spelling skills, and writing skills.

**Specific Objectives for Lower Elementary Language**

**Listening and Speaking Skills**

* 1.00 Receptive skills
	+ 1.10 Listens to others with eye contact and positive body language demonstrating respect for others
	+ 1.20 Follows verbal directions – up to four steps
	+ 1.30 Blocks out extraneous noise/conversations and maintains work focus
* 2.00 Speaking skills
	+ 2.10 Speaks publicly before a small group, communicating ideas effectively
	+ 2.20 Participates in discussion activities regarding reading
	+ 2.30 Participates in drama, play, music performance activities
	+ 2.40 Discusses readings, “shares”, and projects within the context of personal experiences and life situations

**Reading Skills**

* 1.00 Word study
	+ 1.10 Defines and creates compound words
	+ 1.20 Defines and identifies: root word, suffixes, prefixes
	+ 1.30 Defines and applies examples
		- 1.30.1 Antonyms
		- 1.30.2 Synonyms
		- 1.30.3 Homonyms
		- 1.30.4 Similes
		- 1.30.5 Metaphors
		- 1.30.6 Rhyming words
	+ 1.40 Determines number of syllables in a word
	+ 1.50 Alphabetizes to the 2nd, 3rd, and 4th letter
	+ 1.60 Uses reference texts appropriately
		- 1.60.1 Dictionary: locates words, parts of speech, and definitions using guide words.
		- 1.60.2 Thesaurus: locates synonyms
		- 1.60.3 Encyclopedia: locates information an a topic
		- 1.60.4 Atlas
		- 1.60.5 Almanac
		- 1.60.6 Telephone book
		- 1.60.7 Uses Computer card catalog or Dewey decimal system for locating information in library
	+ 1.70 Classifies vocabulary terms and creates a chart
	+ 1.80 Reads orally with fluency, accuracy, and comprehension
* 2.00 Grammar
	+ 2.10 Defines parts of speech and identifies each part within a sentence
		- noun (proper and common); adjective; article; verb; preposition;
		- pronouns; adverbs; interjections; conjunctions
	+ 2.20 Locates within a sentence: subject; predicate; direct object
* 3.00 Comprehension
	+ 3.10 Sequences events in a story by beginning, middle, an end
	+ 3.20 Reads and answers comprehension questions on grade level with > 80% accuracy
	+ 3.30 Determines fact or opinion in statements
	+ 3.40 Determines cause and effect
	+ 3.50 Makes predictions, draws inferences, and conclusions from what is read
	+ 3.60 Relates and compares reading material to real life experiences
* 4.00 Combined tasks
	+ 4.10 Works independently to complete a task by following written directions
	+ 4.20 Reads for pleasure \*
		- 4.20.1 Defines and identifies: legends; myths; fairy tales; biographies; autobiographies, fiction; non-fiction
		- 4.30 Participates in Jr. Great Books reading with vocabulary enrichment and assignments
	+ 4.40 Reads pictographs, tables, charts, and graphs with accuracy and answers questions for comprehension

**Spelling Skills**

* 1.00 Uses spelling strategies to accurately spell words
* 2.00 Adds plural endings: s, -es, -ies and irregular plurals
* 3.00 Uses contractions appropriately
* 4.00 Spells words on grade level using knowledge of spelling rules and patterns
* 5.00 Studies for spelling/vocabulary tests and takes test with ease

**Writing Skills**

* 1.00 Handwriting
	+ 1.10 Writes legibly in manuscript, with margins and spacing
	+ 1.20 Writes legibly in cursive, with margins and spacing
* 2.00 Language mechanics
	+ 2.10 Capitalizes correctly
	+ 2.20 Utilizes punctuation correctly: end marks; commas; quotation marks; colons; semicolons; hyphens; abbreviations; apostrophes
* 3.00 Writing Skills
	+ 3.10 Beginning skills
		- 3.10.1 Writes 3 types of sentences: declarative; imperative; interrogatory
		- 3.10.2 Writes a description utilizing adjectives
		- 3.10.3 Writes a paragraph accurately with correct capitalization, punctuation and topic sentences
		- 3.10.4 Writes a persuasive paragraph
		- 3.10.5 Groups topics into paragraphs
		- 3.10.6 Understands writing process: planning, drafting, revising, editing, publishing
	+ 3.20 Intermediate skills
		- 3.20.1 Writes a journal entry
		- 3.20.2 Writes poems, including a haiku poem
		- 3.20.3 Completes a story in own word when given a story starter
		- 3.20.4 Writes an autobiography
		- 3.20.5 Writes a short summary of a book previously read
		- 3.20.6 Writes a story with a clear beginning, middle, and end
		- 3.20.7 Writes a friendly letter or thank you note with correct structure
		- 3.20.8 Writes descriptive essay
		- 3.20.9 Writes a newspaper article with headline and byline
	+ 3.30 Advanced skills
		- 3.30.1 Illustrates a story map
		- 3.30.2 Groups topics into paragraphs
		- 3.30.3 Writes a comparison paragraph using a Venn diagram for a draft
		- 3.30.4 Creates an outline from material read
		- 3.30.5 Takes notes on important information
		- 3.30.6 Begins general research activities: finds books, uses index, uses table of contents, records information
		- 3.30.7 Paraphrases information from information
		- 3.30.8 Writes short research paper with a bibliography
		- 3.30.9 Uses a computer to publish a story or work
		- 3.30.10 Completes assignments within deadline, demonstrating responsibility for 4th grade
		- 3.30.11 Utilizes computer for word processing and research

\* Reading is accomplished through “Read-Aloud”, self-selection, and by assignment for group discussion work. Reading spans the gamut from picture books, beginning readers, short prose, poetry, SRA’s, Barnell-Loft, chapter books, Junior Great Books, Caldecott Books, Newberry Books, and beginning classics.

Listed are some of the available selections from Junior Great Books:

*The Black Hen’s Egg*, a French Folktale
*The Mouse and the Wizard*, a Hindu Fable
*Rumpelstiltskin* by the Brothers Grimm
*Eeyore Has a Birthday* by A.A. Milne
*The King of the Frogs*, an African Folktale
*Snow-White and the Seven Dwarfs* by the Brothers Grimm
*The Happy Lion* by Louise Fatio
*The Tale of Squirrel Nutkin* by Beatrix Potter
*How the Camel Got His Hump* by Rudyard Kipling
*Kanga and Baby Roo Come to the Forest* by A.A. Milne
*Arap Sang and the Cranes*, an African Folktale
*Blue Moose* by Daniel Pinkwater
*Anancy and Dog and Puss and Friendship*, an West Indian Folktale
*Jack and the Beanstalk*, an English Folktale
*The Magic Listening Cap*, a Japanese Folktale
*The Jackal and the Partridge*, a Punjabi Folktale
*Nail Soup*, a Swedish Folktale
*The Apple of Contentment* by Howard Pyle
*The Master Cat* by Charles Perrault
*The Fisherman and His Wife* by the Brothers Grimm
*The Little Daughter of the Snow*, a Russian Folktale
*The Ugly Duckling* by Hans Christian Andersen
*The Monster Who Grew Small* by Joan Grant
*The Little Humpbacked Horse*, a Russian Folktale
*Ooka and the Honest Thief*, a Japanese Folktale
*The Brave Little Tailor* by the Brothers Grimm
*Jean Labadie’s Big Black Dog* a French-Canadian Folktale
*Caporushes*, an English Folktale
*It’s All the Fault of Adam* a Nigerian Folktale
*Two Wise Children* by Robert Graves

Lower Primary math studies include numeration, addition, subtraction, multiplication, division, elements across operations, measurement, money, time, squaring, fractions, charts and graphs, geometry, and higher level skills.

**Specific Objectives for Lower Elementary Math**

**Numeration**

* 1.00 Counts sequentially to any value
* 2.00 Knows place value concepts to one million
	+ 2.10 Writes number in expanded notation
	+ 2.20 Writes number to one million using commas correctly
	+ 2.30 Writes number in words
	+ 2.40 Identifies place value in various numbers
* 3.00 Classification
	+ 3.10 Identifies ordinal numbers (first, second, third)
	+ 3.20 Identifies odd and even numbers
	+ 3.30 Identifies Roman numerals to 20
* 4.00 Order and sequencing
	+ 4.10 Lists numbers before and after any given number, to one million
	+ 4.20 Understands that there are number less than zero
	+ 4.30 Sequences from least to greatest, numbers to one million
	+ 4.40 Sequences decimals from least to greatest
	+ 4.50 Sequences fractions from least to greatest
	+ 4.60 Finds missing numbers using multiples or knowledge of number
	+ relationships
* 5.00 Understands and applies strategies
* 6 .00 Rounds numbers to the nearest 10, 100, and 1,000
* 7.00 Understands >, <, =

**Addition**

* 1.00 Memorizes addition facts through 18
* 2.00 Understands concept of addition with and without materials (beads/rods)
* 3.00 Adds numbers in columns
	+ 3.10 With and without regrouping (static and dynamic)
	+ 3.20 Understands concept of regrouping in addition
	+ 3.30 Maintains correct place value for money and decimals
* 4.00 Adds numbers in order presented horizontally
	+ 4.10 Converts to a vertical orientation, maintaining place value
		- 4.10.1 Numbers above zero
		- 4.10.2 Money
		- 4.10.3 Decimals

 **Subtraction**

* 1.00 Memorizes subtraction facts through 18
* 2.00 Understands concepts of subtraction with and without materials
* 3.00 Subtracts numbers in columns
	+ 3.10 With and without regrouping (static and dynamic)
	+ 3.20 Understands concept of regrouping in subtraction
	+ 3.30 Maintains correct place value for money and decimals

**Multiplication**

* 1.00 Memorizes multiplication facts through 12
* 2.00 Understands the concept of multiplication
* 3.00 Multiplies with one and two multipliers with regrouping (dynamic)
* 4.00 Lists multiples of numbers
* 5.00 Begins to find lowest common multiples of numbers
* 6.00 Can make a factor tree for a given number
* 7.00 Begins to find greatest common factors of numbers

**Division**

* 1.00 Memorizes division facts through 12
* 2.00 Understands the concepts of division
* 3.00 Performs long division with and without materials

**Elements Across Operations**

* 1.00 Understands properties of zero for +, -, x, and
* 2.00 Understands properties of one for +, -, x, and
* 3.00 Adds or subtracts numbers above zero with a numberline
* 4.00 Conserves numbers
* 5.00 Averages numbers
* 6.00 Solves > and < equations with numbers to one million
* 7.00 Solves > and < equations with fractions
* 8.00 Understands and illustrates concepts of commutative, associative, and
* distributive properties (with materials)

**Measurements**

* 1.00 Measures in centimeters and inches with a ruler
* 2.00 Finds the perimeter of rectangles and other figures
* 3.00 Finds the area of rectangles and other figures
* 4.00 Finds the volume of a rectangle with a formula
* 5.00 Measures in capacity: teaspoon, tablespoon, cup, pint, quart, gallon
* 6.00 Solves simple conversion problems with weight, capacity, and length
* 7.00 Estimates
	+ 7.10 Length, width, height, and weight
	+ 7.20 Quantity and amounts

**Money**

* 1.00 Identifies correct value to U.S. currency
* 2.00 Manipulates money maintaining decimal points and dollar sign:
	+ Adds, subtracts, multiplies, divides
* 3.00 Makes change to $100.00

**Analogue and Digital Time**

* 1.00 Tells time to the minute
* 2.00 Solves elapsed time word problems without aid of clock

**Word Problems**

* 1.00 Solves two and three step word problems
* 2.00 Solves word problems with all four operations, fractions, time, and money
* 3.00 Makes up word problems with all four operations

**Squaring**

* 1.00 Squares a number
* 2.00 Cubes a number
* 3.00 Finds the square root of a simple number with and without materials
* 4.00 Figures the square of a binomial with the aid of materials
* 5.00 Figures the square of a trinomial with the aid of materials

**Fractions**

* 1.00 Identifies fractions with materials, in relationship to cooking and
* geometric shapes
* 2.00 Sequences fractions from smallest to largest
* 3.00 Finds fraction equivalencies with >, <, and equal to, without materials
* 4.00 Adds and subtracts fractions with the same denominator without materials
* 5.00 Multiplies and divides fractions without materials

**Decimals**

* 1.00 Identifies decimals concepts to ten thousandths
* 2.00 Sees relationship of decimals to fractions

**Charts and Graphs**

* 1.00 Reads and understands a simple chart, bar or circle graph, grid
* 2.00 Creates charts and graphs from nominal data
* 3.00 Understands 100%, 50%, 25%

**Geometry**

* 1.00 Defines and identifies point, surface, solid, line, surface, side, edge, vertex
* 2.00 Plane geometry
	+ 2.10 Lines: Define, identify, and construct
		- 2.10.1 Straight, curved, horizontal, vertical, oblique, perpendicular
		- 2.10.2 Line, ray, and line segment
		- 2.10.3 Parallel, convergent, and divergent
	+ 2.20 Angles: Define, identify, and construct parts of an angle
		- 2.20.1 Right, straight, acute, obtuse, reflex, whole
		- 2.20.2 Adjacent, vertical, complementary and supplementary
		- 2.20.3 Vertical angles that are equal
		- 2.20.4 Sizes of angles: protractor
		- 2.20.5 Convex and reflex angles
	+ 2.30 Exploration of three straight lines
		- 2.30.1 Alternate exterior, alternate interior, interior angles on
		- the same transversal and corresponding angles
		- 2.30.2 Parallel lines cut by a transversal
			* 2.30.2a Alternate lines are equal
			* 2.30.2b Corresponding angles are equal
			* 2.30.2c Exterior or interior angles on the same side as the transversal are supplementary
* 3.00 Geometric Solids- defines and identifies:
	+ Ellipsoid, ovoid, sphere, cylinder, pyramid, rectangular prism, triangular prism
* 4.00 Triangles
	+ 4.10 Classification by side: scalene, isosceles, equilateral
	+ 4.20 Classification by angle: acute, obtuse, right
	+ 4.30 Classification by side and angle
	+ 4.40 Equilateral triangles
	+ 4.50 Cases of scalene and isosceles triangles
	+ 4.60 Base and height exploration
	+ 4.70 Study of orthocenter
	+ 4.80 Catheti
	+ 4.90 Interior and exterior angles of a triangle
* 5.00 Quadrilaterals: define, identify, and construct
	+ 5.10 Square, rectangle, rhombus, parallelogram, trapezoid, quadrilaterals
		- 5.10.1 Types of trapezoids
	+ 5.20 Sum of the interior angles
* 6.00 Regular and irregular polygons
	+ 6.10 Types of polygons
	+ 6.20 Intuition of regular polygon
	+ 6.30 Regular to irregular polygons
	+ 6.40 Angles of a polygon
		- 6.40.1 Sum of interior angles
		- 6.40.2 Sum of exterior angles with more than four sides
	+ 6.50 Constructing polygons
* 7.00 Circle
	+ 7.10 Identifies parts of a circle
	+ 7.20 Mutual position of a line and circle
	+ 7.30 ? with and without radius
	+ 7.40 Relationship of two circles
		- 7.40.1 Without a radius
		- 7.40.2 With radii
		- 7.40.3 Understands intersecting circles, sets
* 8.00 Determines if objects are symmetrical and congruent
	+ 8.10 Symmetry: mirror, flip, reverse, rotate
	+ 8.20 Congruency: includes image matching

**Higher Level Skills**

* 1.00 Determines probability through dice or spinner games
* 2.00 Pre-Algebra skills
	+ 2.10 Understands order of operations
	+ 2.20 Solves problems with parentheses
* 3.00 Algebra skills
	+ 3.10 Uses hands-on material to solve for “x”
* 4.00 Predictions and estimates

Lower Elementary science studies include zoology, botany, earth science, chemistry, physics, and scientific process and principles.

**Specific Objectives for Lower Elementary Science**

**Zoology**

* 1.00 Description by size, appearance, characteristics of 5 kingdoms of living
* things: prokaroyote, protoctista, fungi, plant, animal
* 2.00 Comparison and differentiation of vertebrates and invertebrates,
* past/ present
* 3.00 Classification, description, and parts of invertebrates, with specimens
	+ 3.10 Protozoa
	+ 3.20 Porifera
	+ 3.30 Coelenterate
	+ 3.40 Platzyheiminthes
	+ 3.50 Annelid
	+ 3.60 Arthropod
	+ 3.70 Mollusk
	+ 3.80 Echinidermata
* 4.00 Classification, description, external and internal parts of vertebrates
	+ 4.10 Fish
	+ 4.20 Amphibian
	+ 4.30 Reptile
	+ 4.40 Bird
	+ 4.60 Mammal
* 5.00 Timelines, biomes, habitats of vertebrates
	+ 5.10 Fish
	+ 5.20 Amphibian
	+ 5.30 Reptile
	+ 5.40 Bird
	+ 5.50 Mammal

**Botany**

* 1.00 Comparison of living and non-living
* 2.00 Characteristics of plants and animals
* 3.00 Comparison of plants and animals
* 4.00 Identification, type, shapes, component parts, location, and preservation
* 4.10 Trees
* 4.20 Shrubs
	+ 4.30 Flowers
	+ 4.40 Plants
	+ 4.50 Leaves
	+ 4.60 Seeds
* 5.00 Identification within plant kingdom
	+ 5.10 First knowledge
	+ 5.20 Plant stories
	+ 5.30 Question and answer game
* 6.00 Life cycle of plants with gardening
	+ 6.10 Soil preparation
	+ 6.20 Annuals vs. perennials
	+ 6.30 Planting/care
* 7.00 Introduction to concepts and practical experiments for
	+ environmental concerns
	+ 7.10 Water conservation
	+ 7.20 Energy conservation
		- 7.20.1 Solar energy
	+ 7.30 Waste conservation
		- 7.30.1 Recycling
		- 7.30.2 Composting

**Earth Science**

* 1.00 Astronomy
	+ 1.10 Review of universe, whole to part
	+ 1.20 Review of solar system: planet order, characteristics
	+ 1.30 Introduction to stars
		- 1.30.1 Constellations
		- 1.30.2 Big and Little Dipper; North Star
* 2.00 Planet Earth
	+ 2.10 Timeline of life
		- 2.10.1 Creation and types of fossils
		- 2.10.2 Classification of rocks and minerals:
		- sedimentary, ignateous, metamorphic
	+ 2.20 Origin of earth
		- 2.20.1 Existence of theories
		- 2.20.2 Plate tectonics
		- 2.20.3 Pangea
	+ 2.30 Definition, identification, formation of landforms
		- 2.30.1 Stresses to landforms: erosion, water, wind, earthquakes, man
		- 2.30.2 Comparison of continents
			* 2.30.2a Biomes
			* 2.30.2b Other comparisons (see Geography)
	+ 2.40 Definition, identification, formation of water forms
		- 2.40.1 Stresses to water forms: erosion, pollution, land development
		- 2.40.2 Identification of oceans and major seas
			* 2.40.2a Comparisons of salt vs fresh water
			* 2.40.2b Ocean life
	+ 2.50 Vocabulary recognition of atmospheric layers
	+ 2.60 Orientation, direction, beginning mapping skills
		- 2.60.1 Review compass, N,S,E,W
		- 2.60.2 Longitude and latitude
		- 2.60.3 Global positioning
* 3.00 Seasons
	+ 3.10 Cause of day/night
	+ 3.20 Cause and comparison of spring, summer, autumn, winter
	+ 3.30 Phases of the moon
* 4.00 Weather
	+ 4.10 Measurements and instruments
		- 4.10.1 Temperature
		- 4.10.2 Barometer, aerometer, thermometer, hydrometer
	+ 4.20 Elements and how each affect weather
		- 4.20.1 Air, wind, heat, precipitation
	+ 4.30 Classification and identification of major cloud formations
	+ 4.40 Types, causes, and safety measures for storms
		- 4.40.1 Thunderstorms
		- 4.40.2 Hurricanes
		- 4.40.3 Tornadoes
	+ 4.50 Description of water cycle
		- 4.50.1 Water conservation

**Chemistry**

* 1.00 Three States of Matter
	+ 1.10 Definition and identification of solid ,liquid, gas
		- 1.10.1 Experiments
		- 1.10.2 Physical properties of matter: soft, hard, rigid., etc.
	+ 1.20 Forces and how they act on matter
	+ 1.30 Vocabulary of and experiments for chemical and physical changes in matter
	+ 1.40 Creation of solutions
	+ 1.50 Effect of heat on matter
* 2.00 Definition and experiments for acid and base
	+ 2.10 Testing of liquids
	+ 2.20 Testing of soil
* 3.00 Periodic table of elements
	+ 3.10 Presentation of chart
	+ 3.20 Location and identification of simple elements:
		- e.g. hydrogen, oxygen, gold
* 4.00 Atomic structure
	+ 4.10 Vocabulary and identification of molecules and atoms
		- 4.10.1 Protons, electrons, neutrons
		- 4.10.2 Atomic diagram

**Physics**

* 1.00 Electricity
	+ 1.10 Where electricity is used
	+ 1.20 Observation of whole to part: lamp to bulb to filament
	+ 1.30Existence of circuit for electricity to flow
* 2.00 Observation of and experiments for magnets:
	+ positive and negative components
* 3.00 Theory and purpose of gravity
* 4.00 Definition and experiments for buoyancy
* 5.00 Balance
	+ 5.10 Scientific scale, gram scale
	+ 5.20 Making predictions and estimations
* 6.00 Definition of and manipulation of seven simple machines
	+ 6.10 Concepts of mass, work, friction
* 7.00 Motion
	+ 7.10 Force, speed, direction
	+ 7.20 Principles and forces acting upon flight
	+ 7.20.1Air foil, lift, wind
	+ 7.30 Inertia, friction
* 8.00 Types and identification of light: spectrum, ultraviolet, transparent, and opaque
* 9.00 Sound
	+ 9.10 Propagation of wave
	+ 9.20 Experiments with sound through different states of matter
	+ 9.30 Human hearing

**Scientific Process and Principles**

* 1.00 Observation
	+ 1.10 The child’s ability to recognize whole/part relationships is reinforced
	+ and heightened
	+ 1.20 Skills occur through prepared classroom environment
	+ 1.30 Skills occur in natural environment: nature walks, field trips
* 2.00 Experimentation
	+ 2.10 Self-directed trials through prepared classroom environment
	+ 2.20 Group trials on random environmental topics
	+ 2.30 Annual participation in science fair project
* 3.00 Research
	+ 3.10 Research process presented conceptually
	+ 3.20 Reviews are completed on self and teacher-selected topics
	+ throughout the year
	+ 3.30 Review completed for annual science fair project
* 4.00 Presentation
	+ 4.10 Individual interests observed, experimented, or researched are
	+ encouraged for oral presentation during weekly share time
	+ 4.20 Oral and written presentation for projects and experiments
	+ 4.30 Group discussions regarding experimental process: cause/effect,
	+ predictions, hypotheses, conclusions, etc.