



# GRACE MONTESSORI ACADEMY

## LOWER ELEMENTARY CURRICULUM

Grace Montessori Academy's mission is to educate students using the Montessori method within the framework of a Christian worldview. Our curriculum is academically challenging and leads children to an understanding of the world as a Christian. Each avenue is taught from a perspective which encourages the children to stand in awe of God and His wonderful creation. Everything we study is presented with order and beauty, made appropriate and meaningful for young learners

Children in the 6-9 age group are starting to realize that the world is an enormous, interesting place. They are primed to study continents, cultures, scientific concepts, and great literature. The world becomes their classroom. The carefully developed elementary curriculum guides the child through identifying, classifying, and researching all of the fascinating concepts in each chosen field of study. The areas of practical life, language, math, geometry, botany, zoology, geography, and history are all represented in the classroom, with materials that lead the child to abstraction of the fundamental concepts in each area. Our lessons are aesthetically pleasing, yet rigorous and engaging, designed with intentional purpose and meaning. We strongly believe that children learn better in a multi-sensory environment.

## First Year

### Math

#### Fundamentals of Decimal System

- Counting 1 - 1,000
- Skip Counting 1-10's
- Place Value up to 9,999
- Exchanging

#### Operations - Addition

- Addition up to 2-4-digit addends static (Golden Beads, Stamp Game, Small Bead Frame, Large Bead Frame, Golden Mat)
- Addition of 2-4 digit addends dynamic (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Addition of Multiple Addends

- Memorization of Math Facts - Addends between 1-10 (Addition Strip Board, Addition Snake Game, Bead Bars, Flash Cards, Games, Addition Charts, etc)
- Passage to Abstraction

### Operations - Subtraction

- Subtraction up to four-digit numbers static (Golden Beads, Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Subtraction of two four-digit numbers dynamic (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Memorization of Math Facts - 1 -18 (Subtraction Strip Board, Bead Bars, Negative Snake Game, Flash Cards, Subtraction Cards, etc.)
- Missing Subtrahend, Minuend and Difference
- Passage to Abstraction - Static and Dynamic

### Operations - Multiplication

- Process of Multiplication
- Multiplication of a four-digit number by a one-digit multiplier (Golden Beads, Stamp Game, Small Bead Frame, Golden Mat)
- Memorization of Math Facts Tables 1-10: (Bead Chains, Bead Bars, Multiplication Charts, Flash Cards, Decanomial, Games, etc.)
- Missing Factors
- Passage to Abstraction

### Operations - Division

- Process of Division
- Division of a 4 digit number without a remainder (Golden Bead, Stamp Game, Racks & Tubes, Golden Mat)
- Basic Division Facts 1-9 (Unite Division Board, Division Chart, Flash Cards, Games, etc.)

### Fractions

- Introduction to Fractions
- Recognition of Fractions: Concrete Material and Symbol
- Fraction Skittles
- Fraction Circles
- Equivalences
- Fractions: Addition with Like Denominators (Fraction Circles, Fraction Circle Box)
- Fractions: Subtraction of Like Denominators (Fraction Circles, Fraction Circle Box)
- Rounding Numbers

### Problem Solving

- Addition Word Problems
- Subtraction Word Problems
- Patterns

## Memorization of Math Facts

- Rocket Math

## Money

- Identifying Units of Currency
- Counting Money
- Making Change
- Adding Money
- Subtracting Money

## Measurement

- Linear Measurement: Inch, Foot, Yard and Mile
- Using a ruler and yardstick
- Liquid: Cup, Pint, Quart & Gallon
- Dry: Tsp., Tbsp., & Cup
- Weight: Ounce, Pound
- Volume: Sensorial
- Temperature: Fahrenheit
- Practical Applications: Cooking and Science

## Graphing

- Line Graphs
- Picture Graphs
- Bar Graph

## Inequalities

- Greater Than
- Less Than
- Equal to...

## Geometry

- Recognition and Nomenclature of Geometric Figures - 3D
- Geometric Cabinet
- Solid, Line and Point

## Language

### Speaking Skills

- Oral Reports
- Public Speaking
- Participating in group discussions

### Listening Skills

- Following Directions

- Verbal Comprehension

### Comprehension

- Identifying Character's Feelings/Motives/Traits/Behaviors
- Summarizing Plot
- Identifying Problems
- Predictions
- Locating the Answer
- Getting the Facts
- Drawing Conclusions
- Working within Words
- Following Directions
- Sequencing
- McCall-Crabbs Standard Test Lessons

### Handwriting

- Metal Insets
- Upper Case Manuscript
- Lower Case Manuscript
- Correct Spacing

### Word Attack Skills

- Blends
- Digraphs
- Phonograms
- Short Vowel
- Long Vowel
- Silent E
- Puzzle Words
- Diphthongs

### Grammar

- Function of Words (noun, article, adjective, verb, and pronoun)

### Reading

- Simple Sentences
- Phonetic Readers
- Simple Non-Phonetic Readers
- Silent Reading
- Language Series
- Read Aloud/Literature Study: Junior Great Books; A-Z Guided Readers, Spell to Write and Read.

### Word Study

- Compound Words

- Contractions
- Antonyms
- Synonyms
- Dictionary Skills
- Alphabetizing

## Spelling

- Rhyming Words
- Word Families
- Sight Words
- Spelling Tests

## Punctuation

- Periods
- Question Marks
- Exclamations
- Paragraph Indentation

## Capitalization

- Proper Nouns
- Initial Word
- Pronoun I

## Creative Writing

- Journals
- Simple Sentences
- Logical Noun Phrases
- Friendly Letter
- Paragraph
- Writing Workshop/Editing
- Webbing

## Vocabulary

- Based on units of study in various curricula areas

## History of Writing

## History

### Time

- Hours
- Minutes
- Seconds
- Passage

- Linear Calendar
- Days of the Week
- Months of the Year
- Seasons
- Personal Timeline
- Telling Time: Non-Digital & Digital (Hour, Half-Hour, Quarter Hour, Five Minutes, Minute)
- BC/AD

## Prehistory

- Big Bang/Creation Stories
- Formation of the Solar System
- Formation of the Earth
- Long Black Line
- Clock of Eras
- Timeline

## Citizenship

## Geography

### Political Geography

- Continents (in-depth study of two continents per year)
- Puzzle Maps
- Outline Maps
- Compass Directions/Skills: North, South, East & West, Intermediate Directions
- Map Skills: Classroom Mapping, School Mapping
- Flag Study: Flag as Symbol, Parts, Flags of relevant continents studied

### Physical Geography

- Land and Water Forms: Cape, Bay, Island, Lake, Isthmus, Strait, Gulf, Peninsula
- Climates: Study relevant climates of continents being studied
- Environments/Biomes: Study relevant climates of continents being studied

### Cultural Geography

- Needs of People: Introduction to Material/Spiritual Needs - Shelter, Clothing, Transportation, Self-Defense, Food, Art, Music, Government, Beauty, Religion
- Holiday Study

**Note:** The continents are studied in a 3-year cycle. Year one includes North America and Europe. Year two includes Asia, Australia and Antarctica. Year three includes South America and Africa.

# Science

## Zoology

- Living/Non-living
- Vertebrate/Invertebrate
- Plant/Animal
- Five Kingdoms
- Invertebrates - External Parts & Common Characteristics
- One-Celled Animals
- Porifera: Sponges
- Coelenterates: Jellyfish, anemones
- Who Am I?
- Tree of Life
- Classification Chart

## Botany

- Plant Identification Level I
- Parts of a Plant
- Roots: Parts & Types
- Stems: Parts & Types
- Bulb: Parts & Types
- Leaves: Parts & Types
- Flower: Parts & Types
- Fruit: Parts & Types
- Seeds: Parts & Types

## Physical Science

- Light: Eye, Color, Reflection, Refraction, Shadows, Camera, Sundial
- Physics: Simple Machines, Technology
- Chemistry: Freezing, Melting, Currents, Matter, Mixtures, Solutions, Compounds, Periodic Table
- Sound: Ear, Vibrations, Sound Waves, Pitch, Frequency
- Electricity: Static Electricity, Batteries, Resistance, Conductor/Insulator, Open/Closed Circuit, Series/Parallel Circuit, Magnetism
- Energy: Types: Potential/Kinetic, Atomic/Nuclear, Mechanical, Electrical, Magnetic, Thermal, Chemical and Conservation

**Note:** The science curriculum follows a three-year cycle. Year one includes light and physics. Year two includes energy and chemistry. Year three includes sound and electricity.

# Second Year

## Math

### Fundamentals of Decimal System

- Counting 1 - 1,000
- Skip Counting 1-10's
- Place Value up to 9,999,999
- Hierarchy of Decimal System Material
- Ordinal Numbers

### Operations - Addition

- Addition up to 2-4-digit addends static (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Addition of 2-4 digit addends dynamic (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Addition of Multiple Addends
- Memorization of Math Facts - Addends between 1-10 (Bead Bars, Flash Cards, Games, Addition Charts, etc.)
- Associative and Commutative Properties of Addition
- Passage to Abstraction

### Operations - Subtraction

- Subtraction up to four-digit numbers static (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Subtraction of two four-digit numbers dynamic (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Memorization of Math Facts 1-18 (Bead Bars, Negative Snake Game, Flash Cards, Subtraction Cards, etc.)
- Missing Subtrahend, Minuend and Difference
- Passage to Abstraction

### Operations - Multiplication

- Multiplication of a 4-digit number by a 1-digit multiplier (Stamp Game, Small Bead Frame, Large Bead Frame, Checkerboard, Golden Mat)
- Multiplication of a 4-digit number by 2-digit multiplier (Stamp Game, Small Bead Frame, Large Bead Frame, Checkerboard, Golden Mat)
- Memorization of Math Facts Tables 1-10: (Bead Bars, Multiplication Charts, Flash Cards, Decanomial, Games, etc.)
- Missing Factors
- Passage to Abstraction



## Operations - Division

- Process of Division
- Division of a 2 digit number without a remainder (Golden Bead, Stamp Game, Racks and Tubes, Stamp Game, Golden Mat)
- Division up to a 2 digit number with a remainder (Golden Beads, Racks and Tubes, Stamp Game, Golden Mat)
- Division Memorization - Facts of Divisors 1-9 (Unit Division Board, Division

## Fractions

- Introduction to Fractions
- Recognition of Fractions: Concrete Material and Symbol
- Fraction Skittles
- Fraction Circles
- Equivalences
- Fraction Circle Box
- Fractions: Addition with Like Denominators (Fraction Circles, Fraction Circle Box)
- Fractions: Subtraction of Like Denominators (Fraction Circles, Fraction Circle Box)
- Fractions: Addition with Unlike Denominators (Fraction Circles, Fraction Circle Box)
- Fractions: Subtraction with Unlike Denominators (Fraction Circles, Fraction Circle Box)
- Fraction Equivalences: (Fraction Circles, Fraction Circle Box)
- Rounding Numbers

## Problem Solving

- Addition Word Problems
- Subtraction Word Problems
- Multiplication Word Problems
- Multi-Step
- Patterns
- Tables

## Money

- Identifying Units of Currency
- Counting Money
- Making Change
- Adding Money
- Subtracting Money
- Multiplying Money

## Measurement

- Linear Measurement: Inch, Foot, Yard, and Mile
- Liquid: Cup, Pint, Quart and Gallon
- Dry: Teaspoon, Tablespoon, and Cup
- Using a Trundle Wheel

- Weight: Ounce, Pound
- Volume: Sensorial
- Temperature: Fahrenheit
- Practical Applications: Cooking and Science

## Graphing

- Line of Graphs
- Picture Graphs
- Bar Graph
- Ordered Pairs

## Inequalities

- Greater Than
- Less Than
- Equal To...

## Geometry

- Recognition and Nomenclature of Geometric Figures - 3D
- Lines
- Angles
- Can Identify Regular Polygons through the Decagon
- Can Identify Irregular Polygons through the Decagon
- Can Identify Quadrilaterals
- Construction of Geometric Figures
- Calculator Skills

## Language

### Speaking Skills

- Oral Reports
- Public Speaking
- Participating in Group Discussions

### Listening Skills

- Following Directions
- Oral Comprehension

### Comprehension

- Identifying Character's Feelings/Motives/Traits/Behaviors
- Summarize Plot,
- Identifying Problems
- Predictions
- Locating the Answer
- Getting the Facts

- Drawing Conclusions
- Working within Words
- Following Directions
- Sequencing
- Inferences
- Using the Context

### Sentence Analysis

- Subject/Predicate

### Handwriting

- Upper Case Manuscript
- Lower Case Manuscript
- Upper Case Cursive
- Lower Case Cursive
- Correct Spacing

### Word Attack Skills

- Blends
- Digraphs
- Phonograms
- Short Vowel
- Long Vowel
- Silent E
- Puzzle Words
- Diphthongs

### Grammar

- Function of Words - (Preposition, Conjunction, and Interjection)
- Grammar Boxes - (Noun, Article, Adjective, Verb and Pronoun)

### Reading

- Simple Sentences
- Phonetic Readers
- Simple Non-Phonetic Readers
- Silent Reading
- Language Series
- Read Aloud/Literature Study
- Dolch Word List

### Word Study

- Compound Words
- Contractions
- Antonyms

- Synonyms
- Dictionary Skills
- Classification
- Homophones
- Thesaurus
- Prefix
- Suffix

## Spelling

- Rhyming Words
- Word Families
- Sight Words
- Phonetic Words

## Punctuation

- Periods
- Question Marks
- Exclamations
- Paragraph Indentation
- Commas
- Quotation Marks

## Capitalization

- Proper Nouns
- Initial Word
- Pronoun I
- Proper Adjectives

## Alphabetization

- First, Second and Third Letter

## Creative Writing

- Journals
- Simple Sentences
- Logical Noun Phrases
- Friendly Letter
- Paragraph
- Writing Workshop/Editing
- Webbing

## Vocabulary

- Based on units of study in various curricula areas

## History of Writing

### History

#### Time

- Hours
- Minutes
- Seconds
- Passage
- Linear Calendar
- Days of the Week
- Months of the Year
- Seasons
- Personal Timeline
- Telling Time: Non-digital and Digital (Hour, Half-hour, Quarter Hour, Five Minutes, Minute)
- Fundamental Tenses
- BC/AD

#### Prehistory

- Big Bang/Creation Stories
- Formation of the Solar System
- Formation of the Earth
- Long Black Line
- Clock of Eras
- Timeline

#### Solar System

- Copernican Theory of Revolution
- Study of Nine Planets
- Revolution of the Planets
- Diameter of Planets
- Relative Size of Planets
- Mass of Planets
- Distance of Planets
- The Sun
- Stars

#### Citizenship

### Science

#### Zoology

- Five Kingdoms

- Five Classes of Vertebrates Review of External Parts: Fish, Amphibians, Reptiles, Birds and Mammals
- Identification of Common Vertebrates: Fish, Amphibians, Reptiles, Birds and Mammals
- Continuation of Invertebrates
- Annelids
- Platyhelminthes
- Aschelminthes
- Arthropods: Insects, Crustaceans
- Mollusks: Snail, Clam, Octopus, Squid
- Echinoderms: Starfish, Sea Urchin, Sand Dollar
- Defense & Camouflage
- Animal Classification Charts
- Tree of Life

## Botany

- Pollination
- Germination
- Photosynthesis
- Thallophytes: Algae, Fungi, Lichen
- Bryophytes: Liverworts, Mosses
- Pteridophytes: Ferns, Horsetails, Clubmosses
- Gymnosperms
- Angiosperms
- Tree of Life
- Classification Chart

## Physical Science

- Light: Eye, Color, Reflection, Refraction, Shadows, Camera, Sundial
- Physics: Simple Machines, Technology
- Chemistry: Freezing, Melting, Currents, Matter, Mixtures, Solutions, Compounds, Periodic Table
- Sounds: Ear, Vibrations, Sound Waves, Pitch, Frequency
- Electricity: Static Electricity, Batteries, Resistance, Conductor/Insulator, Open/Closed Circuit, Series/Parallel Circuit, Magnetism
- Energy: Types: Potential/Kinetic, Atomic/Nuclear, Mechanical, Electrical, Magnetic, Thermal, Chemical and Conservation

**Note:** The science curriculum follows a three-year cycle. Year one includes light and physics. Year two includes energy and chemistry. Year three includes sound and electricity.

## Geography

### Political Geography

- Continents: (in-depth study of two continents per year)
- Puzzle Maps

- Outline Maps
- Compass Directions/Skills: N,S,E, & W, NE, NW, SE, SW
- Maps Skills: Atlas Skills, Street Maps, Highway Maps, Contour Map
- Flag Study: Flag as Symbol, Parts, Flags of Relevant Continents Studied

### Physical Geography

- Land and Water Forms: Cape, Bay, Island, Lake, Isthmus, Strait, Gulf, Peninsula
- Land, Water & Air
- Interior of the Earth: Layers of the Earth
- Geographical Features: Mountains, Foothills, Valley, Plateau, Canyon, Mesa, River, Volcano, Crater Lake, Archipelago, System of Lakes
- Volcanoes: Parts of a Volcano
- Climates: Study Relevant Climates of Continents Being Studied
- Environments/Biomes: Study Relevant Climates of Continents Being Studied

### Cultural Geography

- Needs of People: Introduction to Material/Spiritual Needs - Shelter, Clothing, Transportation, Self-Defense, Food, Art, Music
- Holiday Study

**Note:** The continents are studied in a 3-year cycle. Year one includes North America and Europe. Two year includes Asia, Australia and Antarctica. Year three includes South America and Africa.

## Third Year

### Math

#### Fundamentals of Decimal System

- Counting 1-1,000
- Skip Counting 1-10's with number rolls
- Place Value up to 9,999,999
- Hierarchy of Decimal System Material

#### Operations - Addition

- Addition up to 7-digit addends static (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Addition of 7-digit addends dynamic (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Addition of Multiple Addends
- Memorization of Math Facts - Addends between 1-18 (Bead Bears, Flash Cards, Games, Addition Charts, etc.)
- Associative and Commutative Properties of Addition
- Passage to Abstraction

## Operations - Subtraction

- Subtraction of two four-digit numbers static (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Subtraction of two four-digit numbers dynamic (Stamp Game, Dot Board, Small Bead Frame, Large Bead Frame, Golden Mat)
- Memorization of Math Facts 1-18 (Bead Bars, Negative Snake Game, Flash Cards, Subtraction Cards, etc.)
- Missing Subtrahend, Minuend and Difference
- Passage to Abstraction

## Operations - Multiplication

- Multiplication of a 7-digit number by a 1-digit multiplier (Stamp Game, Small Bead Frame, Large Bead Frame, Checkerboard Golden Mat)
- Multiplication of a 7-digit number by 2-digit multiplier (Stamp Game, Small Bead Frame, Large Bead Frame, Checkerboard Golden Mat)
- Memorization of Math Facts Tables 1-10 (Bead Bars, Multiplication Charts, Flash Cards, Decanomial, Games, etc.)
- Missing Factors
- Passage to Abstraction

## Operations - Division

- Process of Division
- Division of a 7 digit number without a remainder (Golden Bead, Stamp Game, Racks and Tubes, Golden Mat)
- Division up to a 7 digit number with a remainder (Golden Beads, Racks and Tubes, Stamp Game, Golden Mat)
- Division Memorization - Facts of Divisors 1 -9 (Unit Division Board, Division Chart, Flash Cards, Games, etc.)
- Rules of Divisibility

## Fractions

- Introduction to Fractions
- Recognition of Fractions: Concrete Material and Symbol
- Fraction Skittles
- Fraction Circles
- Equivalences: (Fraction Circles, Mortenson, Fraction Circle Box)
- Count  $\frac{1}{2}$  to  $\frac{1}{10}$
- Fractions: Addition with Like Denominators (Fraction Circles, Fraction Circle Box)
- Fractions: Addition with Unlike Denominators (Fraction Circles, Fraction Circle Box)
- Fractions Subtraction with Unlike Denominators (Fraction Circles, Fraction Circle Box)
- Fractions: Multiplication (Fraction Circles, Fraction Circle Box)
- Mixed Numbers: Reading, Addition and Subtraction (Fraction Circles, Fraction Circle Box)
- Rounding Numbers: 1,10,100 and 1,000



## Problem Solving

- Addition Word Problems
- Subtraction Word Problems
- Multiplication Word Problems
- Multi-Step
- Reverse Order
- Simplify
- Middle Answer
- Extra Information/Missing/Extra

## Money

- Identifying Units of Currency
- Counting Money
- Making Change
- Adding Money
- Subtracting Money
- Multiplying Money

## Measurement

- Linear Measurement: Inch, Yard, and Mile
- Liquid: Cup, Pint, Quart and Gallon
- Dry: Tsp., Tbsp., and Cup
- Using a Trundle Wheel
- Weight: Ounce, Pound
- Volume: Sensorial
- Temperature: Fahrenheit
- Practical Applications: Cooking and Science

## Graphing

- Line Graphs
- Picture Graphs
- Bar Graphs
- Number Lines

## Inequalities

- Greater Than
- Less Than
- Equal to...

## Geometry

- Recognition and Nomenclature of Geometric Figures - 3D
- Lines
- Angles
- Can Identify Regular Polygons through the Decagon

- Can Identify Irregular Polygons through the Decagon
- Can Identify Quadrilaterals
- Construction of Geometric Figures
- Congruence, Similarity and Equivalence
- Symmetry
- Can Identify Triangles by Sides and Angles
- Protractors
- Powers
- Squaring: Bead Bars and Bead Cabinet
- Cubing: Bead Bars and Bead Cabinet

## Area

- Area of Square
- Area of Rectangle

## Volume

- Sensorial Volume

## Decimal Fractions

- Introduction
- Nomenclature and Recognition of Fractions up to .9999
- Addition of Decimals (Pegs, Abstract)
- Subtraction of Decimals (Pegs, Abstract)
- Multiplication of Decimals (Pegs, Abstract)

## Language

### Speaking Skills

- Oral Reports
- Public Speaking
- Participating in Group Discussions

### Listening Skills

- Follows Directions
- Oral Comprehension

### Comprehension

- Identifying Character's Feelings/Motives/Traits/Behavior
- Summarizes Plot
- Identifying Problems
- Predictions
- Locating the Answer
- Getting the Facts
- Drawing Conclusions

- Working within Words
- Following Directions
- Sequencing
- Identifying Inferences
- Using the Context

## Sentence Analysis

- Simple and Compound Sentences

## Handwriting

- Upper and Lower Case Cursive
- Margins
- Correct Spacing
- Correct Letter Size
- Calligraphy

## Word Attack Skills

- Phonograms
- Puzzle Words

## Grammar

- Grammar Boxes (Adverb, Preposition, Conjunction, Interjection)

## Reading

- Language Series
- Chapter Books
- Fictional and Non-Fictional
- Read Aloud
- Dolch/High Frequency

## Word Study

- Contractions
- Synonyms
- Antonyms
- Syllabication
- Suffixes
- Prefixes
- Homonyms
- Root Words
- Dictionary Skills
- Thesaurus

## Spelling

- Rhyming Words

- Word Families
- Sight Words
- Spelling Series

### Punctuation

- Periods
- Question Marks
- Exclamations
- Paragraph Indentation
- Commas
- Quotation Marks
- Semicolon

### Capitalization

- Proper Nouns
- Initial Word
- Pronoun I
- Proper Adjectives

### Alphabetization

- First, Second, Third and Fourth Letter

### Creative Writing

- Journals
- Simple and Complex Sentences
- Friendly Letter
- Business Letter
- Paragraph Development
- Writing Workshop/Editing
- Webbing
- Outlining

### Research

- Paraphrasing
- Atlas
- Glossary
- Index
- Table of Contents
- Bibliography
- Almanac

### Vocabulary

- Based on Units of Study in Various Curricula Areas, Vocabulary Series

# Geography

## Political Geography

- The continents are studied in a 3-year cycle. Year one includes North American and Europe. Year two includes Asia, Australia and Antarctica. Year three includes South America and Africa.
- Continents: (In-depth study of two continents per year)
- Pin Maps (Countries, Capitals, Waterways, Geographical Features and Islands)
- Compass Directions/Skills: N,S,E, and W, Intermediate Directions
- Map Skills: Distance and Scale, Direction and Map Keys, Resource Maps, Landform Maps, Contour Maps, Route Maps, Grids, Equator, Prime Meridian, Hemispheres, Longitude, Latitude, Graphs, Orienteering

## Physical Geography

- The physical geography curriculum is cycled on a three year basis. Year one is the lithosphere; year two is the hydrosphere and atmosphere.
- Lithosphere: Formation of the Earth, Earth Layers, Composition of the Earth, Earthquakes, Volcanoes, Formation of Mountains, Parts of the Crust, Composition of Rocks, Types of Rocks, What is a Rock, Rock Cycle, Minerals, Mohs Hardness Scale.
- Atmosphere: Earth's insulation. Composition of the Atmosphere, Layers of the Atmosphere, Earth's Magnetosphere, Aurora, Electromagnetic Spectrum, Clouds, Tornadoes, Hurricanes, Precipitation, Barometer, Weather Maps, Oxygen/Nitrogen, Cycle, Wind Currents, Formation of Wind, High/Low Pressure, Wind Belts, Land Breeze, Sea Breeze, Greenhouse Effect.
- Hydrosphere: Water Cycle, Ocean Currents, Types of Water: Freshwater and Saltwater, Acid Rain, Aquifers, Dams, Reservoirs.
- The climates/biomes units of study are based on the continents being studied: Africa (desert); South America (rainforest); North America and Europe (temperate); and Antarctica (arctic).
- Climates: Study relevant climates of continents being studied
- Environments/Biomes: Study relevant climates of continents being studied

## Cultural Geography

- Needs of People: Boxes for material/spiritual needs - Shelter, clothing, transportation, self-defense, food, art, music, government, beauty, religion, holidays.

# Science

## Zoology

- Five Kingdoms
- Five Classes of Vertebrates; review of external parts: Fish, Amphibians, Reptiles, Birds and Mammals
- Internal Anatomy of Vertebrates: Fish, Amphibians, Reptiles, Birds and Mammals
- Continuation of Invertebrates
- Annelids
- Platyhelminthes
- Aschelminthes

- Arthropods: Insects, Crustaceans
- Mollusks: Snail, Clam, Octopus, Squid
- Echinoderms: Starfish, Sea Urchin, Sand Dollar
- Defense and Camouflage
- Animal Descriptive Stories
- Animal Classification Charts
- Tree of Life

## Botany

- Pollination
- Germination
- Photosynthesis
- Thallophytes: Algae, Fungi, Lichen
- Bryophytes: Liverworts, Mosses
- Pteridophytes: Ferns, Horsetails
- Gymnosperms
- Angiosperms
- Tree of Life
- Classification Chart

## Physical Science

- Light: Eye, Color, Reflection, Refraction, Shadows, Camera, Sundial
- Physics: Simple Machines, Technology
- Chemistry: Freezing, Melting, Currents, Matter, Mixture, Solutions Compounds, Periodic Table
- Sound: Ear, Vibrations, Sound Waves, Pitch, Frequency
- Electricity: Static Electricity, Batteries, Resistance, Conductor/Insulator, Open/Closed Circuit, Series/Parallel Circuit, Magnetism
- Energy: Types: Potential/Kinetic, Atomic/Nuclear, Mechanical, Electrical, Magnetic, Thermal, Chemical and Conservation

**Note:** The science curriculum follows a three-year cycle. Year one includes light and physics. Year two includes energy and chemistry. Year three includes sound and electricity.