



# Queen of Angels

MONTESSORI

## Program Presentation: The Lower Elementary (6-9) Class

We have prepared this “Program Presentation” as a guide to what is presented in the 6-9 classroom, in order to help you follow your child’s progress at Queen of Angels Montessori School. It outlines broad areas of study and categories of skills that are presented to the children, and it provides brief narrative intended to frame these skills in the broader philosophy and methodology of our school.

In addition, we have prepared a “Curriculum Guide” that lists in more detail skills that are presented at each grade level. However, this will depend on the skill and development of each child. The Curriculum Guide also encompasses Ohio state standards in math and language arts, and details how these are incorporated into the Montessori program at Queen of Angels. The Curriculum Guide is available from your child’s teacher or the school principal for your review.

The major areas of exploration include communication (oral and written expression), reading, mathematics (including geometry) and the cultural subjects.

### Communication

Communication is one of our major human tendencies. It involves both oral and written expression. Communication was slowly developed by many civilizations and countless people. We often represent to people who we are by the way we speak and write. At our school, communication skills are carefully broken down, usually by grade level, for the children to explore. A key lesson is given on the skill, practice is expected, and an assessment (through observation of the child’s work or other means) is given to determine your child’s understanding of that skill. The ultimate goal is for your child to incorporate that skill into his/her everyday usage.

For study we artificially break up communication skills into certain areas. However, we integrate them as soon as possible in your child’s cultural studies and independent research projects. These skills are further practiced and applied in different types of writing. In broad terms, these skills include:

- penmanship
- mechanics (capitalization, punctuation, etc.)
- spelling
- syllabication
- vocabulary
- grammar
- sentence analysis
- listening skills
- speaking skills
- writing composition skills.
- research skills

Over the course of three years in the lower elementary class, the child gradually develops his or her skills in each of these areas. Every child's timetable to do this can vary. However, we generally expect that by the end of a certain grade level your child will have been presented certain skills, has practiced them, and has begun to use them in his/her oral or written communication. A detailed list and approximate age for presentation of specific skills is included in the Curriculum Guide. A broader description of the communication program is as follows:

### **Grammar and Sentence Analysis**

The study of grammar begins soon after the child begins to read. We introduce children to the function of each part of speech through games and exercises that isolate the element under study. Montessori has assigned a graphic symbol to represent each element of grammar. (For example, verbs are represented by a large red circle.) The children use these grammar symbols to analyze sentences, placing the symbol for the appropriate part of speech over each word. Grammar box exercises help the child analyze sentences according to their parts of speech. This material provides a sustained, multi-year study of grammar.

Sentence analysis exercises continue the study of grammar through work with simple and compound sentences, and the logical analysis of the structure of many kinds of sentences.

Concepts covered in the areas of grammar and sentence analysis include:

- article
- noun
- adjective
- verb
- preposition
- adverb
- pronoun
- conjunction
- interjection
- subject
- predicate
- direct object
- indirect object

### **Mechanics**

The following skills are presented over a three-year period in the area of written language mechanics:

- Capitalization
- Punctuation skills, including use of the:
  - period
  - question mark
  - exclamation point
  - comma
  - apostrophe
  - quotation marks

## **Vocabulary**

Vocabulary is developed through word study, which looks at ways the English language expands meaning by combining words and altering their structure. Specific skill areas include:

- compound words
- contractions
- roots, suffixes, and prefixes
- synonyms and antonyms
- homophones, homonyms, and homographs

## **Spelling and Word Study**

Our spelling curriculum is based on the Orton-Gillingham approach to language development. It builds upon an awareness of the sounds of language and the ability to isolate and manipulate individual sounds or parts of words. Spelling is addressed through the patterns of English (such as the ‘silent e’ rules) and through learning sight words. Skills addressed include:

- isolation of sounds
- distinguishing vowels and consonants
- use of blends, digraphs, and phonograms
- patterns and multiple spelling choices
- sight words and homophones
- suffixes and plurals
- syllabication

## **Writing Skills**

The writing process, including pre-writing and editing skills, is developed throughout the elementary program, with each new skill being introduced after the student is able to apply the previous skill easily and independently. Writing is applied throughout the curriculum as students experience many different types of writing. Skill areas include:

- Pre-writing
  - Generating topics
  - Organizing sub-topics
  - Note-taking
  - Key word outlining
- Sentence Writing
  - declarative
  - imperative
  - interrogative
  - exclamatory
  - fragments
  - run-ons

- Paragraph Writing
  - topic sentence
  - body
  - conclusion
  
- Editing
  - For clarity
  - For new vocabulary and interest
  - For mechanics and spelling
  
- Types of Writing
  - letters
  - poetry
  - journal
  - biography
  - autobiography
  - fiction
  - non-fiction

### **Research Skills**

In the lower elementary class, research skills and the preparation of reports become major components of the educational program. Lower elementary students begin learning the skills needed to research areas of interest or assigned topics, and how to communicate their learning through reports – both formal and informal, written and oral. Skill areas include:

- use of table of contents and index
- use of glossary, dictionary, and guide words
- bibliography
- use of research books, such as encyclopedia, atlas, etc.
- reading and interpreting data sources, such as tables, charts, maps, graphs, etc.:
- paraphrasing
- note-taking
- outlining

## Reading

Three basic aspects of reading are decoding, fluency, and comprehension, which work together to enable a person to read fluidly with understanding. These reading skills are addressed both one-on-one and in small groups and are supported by regular practice at home.

- Decoding skills include:
  - Phonemic awareness
  - Decoding phonograms
  - Word analysis
  - Sight words
  - Tone and rhythm
  
- Comprehension skills include:
  - Vocabulary in context
  - Connections
  - Predictions
  - Main idea
  - Sequence
  - Literary elements
  - Types of literature

## Mathematics

In her book From Childhood to Adolescence Dr. Maria Montessori wrote: “Without a mathematics education, it is impossible to understand the progress of our time or participate in it.” Mathematics is an expression of the innate human tendency to order. People have a predisposition towards learning those things pertaining to order, exactness, and precision. Thus every child has a mathematical mind which needs to be developed so that he or she can advance civilization.

At the lower elementary level, most work in the Montessori math curriculum can be broken into a three-stage progression:

1. Concrete exploration.
2. Abstract understanding.
3. Application

Initially, concepts are introduced *concretely* through the use of Montessori materials. After a child masters manipulation of one material, a new material is presented that reveals the concept in a slightly more abstract way. This progressive use of several materials helps the child acquire an increasingly *abstract* grasp of a particular concept. Ultimately, the child internalizes the concept and is able to use the skill with only pencil and paper, or simply “in his head.” Finally, the skill is *applied* through word problems, science experiments, reading (and developing) charts, graphs, tables, using estimation strategies etc.

The guidelines presented below broadly outline the Montessori lower elementary math program, including an integration of Ohio state standards for mathematics with the Montessori curriculum. A more detailed list of grade-level skills is available in the Curriculum Guide, which you can obtain from your child’s teacher or the principal.

A grade indicator at the end of a subject [e.g., “Linear Counting (1)”] tells you that by the end of the 1<sup>st</sup> grade your child should be able to do the skills listed. Multiple grade indicators [e.g. Forming numbers (1,2,3)] indicate that an area is developed over the course of three years, with greater depth of exploration each year

Finally, it should be kept in mind that the aim of work in math and geometry in the Montessori class is not simply the acquisition of skills, but a deeper appreciation of the order and beauty of mathematics and the development of the child’s mathematical mind. As Dr. Montessori said, “Our aim is not only to make the child understand, and still less for force him to memorize, but so to touch his imagination as to enthuse him to his innermost core.”

### **Numeration:**

Montessori materials pertaining to numeration, linear counting, and skip counting include the teens boards, tens boards, hundred board, and bead chains. Teacher-made materials and exercises help the child with greater than/less than, estimating , and rounding.

Linear counting (1)	-master reading and writing numbers to 100 -count forwards and backwards from 100
Skip counting (1,2)	-introduction and mastery of skip counting abstractly to each multiple of ten
Forming numbers (1,2,3)	-introduction and mastery of numbers with up to 7 digits
Place value (1,2,3)	-formation of quantities, identification of place value through millions,- > and <
Other numeration systems (1,2,3)	-exploration of other numeration systems including Roman numerals

### **Operations:**

Children develop understanding of the four basic mathematical operations: (addition, subtraction, division, and multiplication) through work with the golden bead material and other Montessori materials. With each material, the child builds numbers and performs mathematical operations concretely. (This process normally begins by age 4 and extends over the next two or three years.) Work with the math materials over a long period tends to develop in the child a much deeper understanding of mathematics.

Your child will work with the following materials in his or her work with operations: golden beads, colored beads, stamp game, bead frame, golden bead frame, multiplication board, checkerboard, bank game, decanomial, division board, test tube division.

Addition (1,2)	-add four digit addends, static and dynamic, w/material (1) -solve four digit problems on paper with carrying (2)
Subtraction (1,2)	-subtract four digit numbers, static and dynamic, w/material (1) -solve four digit problems on paper with borrowing (2)
Multiplication (1,2,3)	-use material to multiply single digit numbers (1) -solve one and two digit problems with material(2) -solve problems with 4-digit multipliers with material (3) -solve problems with 1-digit multipliers on paper (3) -introduce (2) and master (3) concept of multiplying x10, x100, x100
Division (1,2,3)	-use material to divide single digit numbers (1) -solve one digit divisor problems with material (2) -solve problems with multi-digit divisors with material (3)

### **Memorization of Facts**

After extensive work with concrete materials, memorization of the basic math facts is required. (adding and subtracting numbers under 10 and basic multiplication and division facts without the aid of the materials) This typically begins at age 5 and is normally completed by age 9.

Addition & Subtraction (1,2)	-master all addition and subtraction facts (1) -master all addition and subtraction facts on timed tests (2) -add and subtract multiples of 10 abstractly (2)
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- Multiplication (2,3) -master multiplication facts on timed tests (2)
- Division (3) -master division facts (3)
- solve mixed combinations of problems (including all four operations) in timed tests (3)

### **Applications**

Practical application problems, which are used to some extent from the beginning, become far more important around age 7-8 and afterward. Solving word problems, including determining arithmetic procedures in real situations, becomes a major focus.

- Word problems (1,2,3) -solve word problems of increasing complexity
- Money (1,2,3) -work with names and values of coins and coin combinations, count money and make change, write monetary values
- Measurement (1,2,3) -use standard and non-standard units of measure to estimate and measure length, weight, and volume
- Time (1,2,3) -measure time and elapsed time with calendars and clocks
- Graphing (1,2,3) -
- Patterns and Sequence (1,2,3) -extend, create, and describe the rule of simple patterns

### **Fractions**

The study of fractions frequently begins with children using the short division materials who find that they have a "remainder" of one and ask whether or not the single unit can be divided further.

- Family recognition (1) -represent and recognize fraction numeration and quantities (1)
- Equivalences (1,2,3) -explore equivalences through tenths with materials (1,2)
- raise or reduce fractions to equivalences with reference to charts or material (3)
- Operations (2,3) -add and subtract fractions with the same denominator (2, 3)
- multiply and divide fractions by a whole number (2, 3))
- Improper fractions (3) -convert improper fractions to mixed numbers and vice versa (3)
- Decimal fractions (3) -introduce concept of decimals to .09 (3)

### **Geometry**

After extensive exploration of basic geometric shapes in the pre-primary classroom, the 6-9 year old child begins studying the properties and definitions of these shapes. Initially, this is as much a reading exercise as mathematics since the definitions are part of the early language materials. Afterwards, the child begins a more advanced study of the nomenclature, characteristics, measurement and drawing of geometric shapes and concepts such as point, line, angle, surface, solid, properties of triangles, circles, etc. This work then continues in repeated, deepening cycles in the 9-12 class.

- Lines (1,2,3) -introduce types and parts of lines (1)
- relation of 2 lines (3)
- Angles -introduce types and parts of angles (1)

- Plane figures (1,2,3)
- measure angles with a circle protractor (3)
  - add angles, find supplementary and complementary angles (3)
  - introduce properties and nomenclature for the families of rectangle, circle, polygon, quadrilateral, and curvilinear shapes (1)
  - identify parts of plane figures (base, height, side, perimeter) (2)
  - classify triangles by angles and sides (2)
  - draw lines of symmetry (3)
  - introduce area of rectangular figures (3)
  - build a 3-dimensional model of an object composed of cubes (3)
  - introduce volume of rectangular prisms (3)

## **Cultural Studies**

### **Overview**

The cultural subjects, such as earth science, life science, social studies, etc., are all facets of the majestic cosmos which is God's creation. These subjects are closely knit together in the elementary classroom to help the child develop a clearer picture of the unfolding Plan of God, as well as his or her place in this Plan.

Three Great Lessons set the stage for the three principal aspects of creation: the Formation of the Universe (geography), the Coming of Life (biology), and the Coming of Man (history). These lessons are designed to spark the child's imagination so to see the essence of the whole. Further lessons continue to use impressionistic charts, physical models and real specimens to gradually fill in the details of each area. After the small group or whole class lessons, the students continue to internalize this knowledge by working with materials, studying models, and researching related topics. Each topic is continually connected to the other parts and to the Great Lessons so that the child can understand how each part of the cosmos is an essential part of the whole creation.

### **Geography**

#### Physical Geography

Geography studies in the 6-9 class explore the awesome design of the physical universe, highlighting the natural laws given to each part, which work in harmony with each other.

- Matter: three states of matter, laws of matter, forces
- The Universe: constellations, stars
- The Solar System: planets, meteors, comets, the moon
- The Sun and the Earth: rotation and revolution, tilt of the axis, seasons, temperature zones
- The Lithosphere: layers of the earth, movements of the crust, results of crust movements: mountains, volcanoes, earthquakes, geysers, rock formation
- The Atmosphere: air, wind, rain, weather
- The Hydrosphere: rivers, erosion, water cycle

### Cultural Geography

Geography also continues work begun in the 3-6 class with topography and political geography. These are connected to the climate, biomes, and cultures of people in different parts of the world. Countries are studied in many ways at all levels, in addition to the study of the regions, culture, and natural resources of the United States. The students also research one nation in detail as their interests lead them, considering geography, climate, flora and fauna, major rivers and lakes, cities, mountains, people, food, religions, etc.

- Topography: land and water forms, mountain ranges, rivers, coastal land forms
- Political geography: continents, countries, US states, cities of the world, flags

### **Biology**

The Coming of Life story begins the study of biology with the unique role which life plays on earth, and highlights the service each part does for the others. Each form of life, however tiny, unconsciously serves the whole while pursuing its own needs. The ever-increasing complexity of life forms show an increasing awareness of this interdependence, and act with increasing care for others, culminating in love.

The individual studies in biology begin with the whole, or most essential concepts, and progress to increasing details. For example, in botany the study of the leaf begins with the function of the leaf, then its parts, and leads to classification of leaves. In zoology, a similar pattern is followed by beginning with the needs of the animal and how these are met in its habitat, then studying the external and internal parts of the animal, and progressing into classification. Generally classification is begun at the end of the 6-9 class and is continued throughout the 9-12 class.

### Botany

- Differentiation between animals and plants, basic characteristics of each
- Function of plants, leaves, roots, stems, flowers, fruits, and seeds, using experiments and demonstrations
- Parts of plants, leaves, roots, stems, flowers, fruits, and seeds, using real specimen, models, and nomenclature cards
- Beginning classification of leaves according to margins, venation, shape, etc.

### Zoology

- Basic needs of animals, leading to lifestyles, habitats, characteristics, and means of caring for their young
- External parts of vertebrates, classification of five types of vertebrates
- Introduction to the internal body functions of vertebrates: heart, lungs, skeleton, etc.
- Differentiation between vertebrates and invertebrates, introduction to needs and types of invertebrates

## Human Body

- Experiences with the 5 senses
- Humans as mammals, major bones of the skeleton
- Nutrition and health

## **History**

History is the connecting thread in all of the cultural studies as human beings act in and upon creation, playing a special role in the Plan of God. The unique gifts of intellect and free will enable human beings to grow in understanding of the universe and come to know its Creator, and the freedom to choose to act and to love. The lack of physical strengths such as fur, claws, and speed has given people the opportunity to use their minds and hands to invent tools and to develop culture. The relative span of time for the formation of the physical universe and the preparation of the earth with life reflect the care with which God prepared the world for His children. The gifts of creation manifest His goodness and call all people to seek Him.

The study of human history in the 6-9 focuses on the fundamental needs common to all people, such as shelter, food, communication, religion, etc. Each need is met in a multitude of ways, which are traced from the earliest humans through history to the present day. These needs are also explored in contemporary cultures around the world, showing the unity of all people of every time and place.

- Relative span of time: geological history, timeline of life, timeline of humans up to first farmers
- Fundamental needs of humans: heat, shelter, communication, clothing, transportation, etc.
- Concept of time: calendar, clock, child's life, family tree
- B.C. -A.D. timeline
- Cultural history: origin of holidays, presidents, famous Americans, etc.

## Lower and Upper Elementary Cultural Scope (draft)

Lower Elementary	Upper Elementary
<b>Geography: God With No Hands</b>	<b>Geography: God With No Hands</b>
Matter & Laws: 3 states of matter, forces Universe: constellations, stars Solar System: planets, meteors, comets, the moon	Chemistry, Physics Astronomy: theories of origin, galaxies, solar action, space travel
Sun and Earth: rotation, tilt, seasons, temperature Lithosphere: earth layers, results of crust movements (mountains, volcanoes, earthquakes, etc.) Atmosphere: air, wind, rain, weather Hydrosphere: rivers, erosion, water cycle	Cartography: latitude/longitude, map projections Geology: plate tectonics (subduction, isostatic movement), advanced rock classification, rock cycle, minerals Meteorology: heat, weather systems, ocean currents Ecology: climate, biomes, ecosystems
Natural geography: land/water forms, mountain ranges, rivers, coastal land forms Political geography: continents, countries, US states, cities of the world, flags	Synthesis of geography, biology, and cultural studies: Imaginary Island Political geography: US capitals, world capitals Economics: compare consumption/production, trade, taxes
<b>Biology: Coming of Life</b>	<b>Biology: Coming of Life</b>
<u>Botany:</u> Function and parts of leaf, root, and stem Function and parts of flower, fruit, and seed Begin classification of leaves (margins, venation, etc.)	<u>Botany:</u> Mineral needs of plants Classification of leaf, root, stem, flower, fruit, and seed
<u>Zoology:</u> Needs of animals, habitat, biomes Vertebrates: external parts, types, internal body function Invertebrates: needs, intro. to types	<u>Zoology:</u> 5 kingdoms: monera, protista, fungi, animal, plant Vital functions Tree of Life Ecology, interdependencies
<u>Human body:</u> 5 senses Skeleton: major bones Nutrition	<u>Human body:</u> Details of each sense (e.g. parts/operation of the eye) Body systems: Great River, functions and parts Heredity, genetics
<b>History: Coming of Man</b>	<b>History: Coming of Man</b>
<u>Pre-history:</u> Geological history Timeline of Life Timeline of Humans: early humans, tools, fire Fundamental needs of humans--vertical studies Time and Calendars B.C.-A.D. Timeline Cultural history (e.g. discovery of America, major presidents, black Americans, etc.)	<u>History:</u> Timeline of Humans: agriculture/civilization Horizontal study of fundamental needs in cultures Migrations Civilizations: ancient, medieval, modern Ohio history American history