Cosmic Education: The Elementary Curriculum

The Great Lessons are at the center of Cosmic Education, the elementary Montessori curriculum. Elementary children use their imaginations and reasoning minds to explore the universe. The adult's role is to be the storyteller of truth, to inspire the children and then to guide them as they acquire the skills to pursue their interests. "The stories present not only the changes the earth has undergone since its beginnings but also the ways in which each new animal or plant affects all the others. The stories inspire awe and wonder about the ecology of the natural world. They also build a sense of the importance of making a contribution to the continuing stream of human progress…" in search of what we call the cosmic task. Each child's experience is enhanced by key lessons opening doors to new areas of investigation. Much of the work of the elementary child is collaborative. The child learns in partnership with others and, at different times, each child is both a teacher and a learner. The children become prepared, both spiritually and intellectually, to make a positive contribution to our world. Freed and supported by the trust of the adults, the elementary child is independent, self-motivated, and imbued with a love of learning and a respect for self, others, and the environment. Elementary children use their imaginations and reasoning minds to explore the universe. The circle map of Cosmic Education shown here, emphasizes the interconnectedness of all areas of the curriculum.

Geography and Science

- Story of the universe and the coming into being of the Earth
- Earth science
  - Composition of the Earth
  - Work of air
  - Work of water
- Physical geography
  - Maps
  - Land forms
  - Longitude and latitude
- Human geography
  - Spread of vegetation
  - People in different zones
- Political geography
- Economic geography
  - Interdependency of human beings in society
  - Consumption and production
- Physics
  - States of matter
  - Magnetism
  - Gravity
- Chemistry
  - Chemical reactions
  - Atomic structure
  - Periodic table
  - Solutions, crystallization

- Astronomy
    - Sun and Earth
    - Seasons
    - Atmosphere
    - Temperature zones

Note: Children are introduced to scientific method and science process skills in the context of their explorations of the above topics.

Biology
- Story of the plant
- Needs of the plant
- Parts of the plant
- Plant classification
- Plant cells
- Needs of animals
- Animal studies
- Vital functions of vertebrates
- Vital functions of invertebrates
- Animal classification
- Animal cells
- Ecology
- Observation and care of living specimens
- Human development
- Interdependencies

History
- Story of the coming of life
- Timeline of life
    - Black strip
    - Clock of eras
- Story of the coming of human beings
    - Hand timeline
    - Timeline of human beings and study of early humans
- Fundamental needs of humans
- History research questions
- Measurement of time
- Phases of history
- Ancient civilizations
- World history
- United States and Minnesota history

Mathematics
- Story of numbers
- Numeration and place value
- Operations

    - Whole numbers
    - Common fractions
    - Decimal fractions
    - Applications
- Properties and rules
    - Commutative and distributive properties
    - Divisibility
    - Factors
    - Multiples
- Signed numbers
- Percent
- Squaring and cubing
- Square root and cube root
- Ratio and proportion
- Introduction to algebra
- Measurement
- Rounding and estimating
- Graphing
- Statistics
- Probability

Geometry
- Story of geometry
- Nomenclature
- Equivalence, congruence, similarity, symmetry
- Lines
- Angles
- Polygons
- Perimeter, area, volume
- Pythagorean theorem
- Circle
- Solid geometry

Language
- Story of communication in sign
- History of written language
- History of English
- Word study and sound analysis
- Grammar
    - Parts of speech/function of words
    - Sentence analysis
    - Compound and complex sentences
- Written language
    - Writing process
    - Organization of expository writing and note-taking
    - Creative writing

Spelling
Mechanics
Handwriting

- Keys to research (library, reference materials, internet)
- Literature
    - Poetry
    - Drama
    - Short story
    - Novel
    - Authors
- Interpretive reading and reading comprehension
- Bookmaking
- Spoken language
    - Discussion
    - Reports
    - Debates
    - Dialogue
    - Speeches
    - Drama
- Computer literacy

Second Language: French
The emphasis on the Elementary I level is on developing listening, pronunciation, and early reading and writing skills. By Elementary II the students are exploring grammatical concepts and reading and writing longer pieces. Use of songs, poems, and the geography and history of French-speaking Europe and Africa are part of each week's work in French.

- Pronunciation and listening skills
- Basic vocabulary
- Simple verbs and beginning conjugations
- Parts of speech
- Poem and fable recitation
- Construct and read simple sentences and stories
- Geography of French-speaking countries
- Holidays and other celebrations
- Noun-adjective agreement
- Idioms
- Ties with American history
- Short articles from French texts

Music
Children are introduced to the basic Montessori music materials in addition to having weekly classes taught using Orff Schulwerk music pedagogy. The focus is on singing, movement and improvisation, solo and ensemble performance. Reading and writing

music are an outgrowth of the children's own creative process, mirroring the Montessori language program. In addition, all students perform in the class or level play.

- Movement exploration
  - Imitative and creative movement
  - Traditional dances and games
  - Clapping and body percussion
- Vocal exploration
  - Unison singing, echo singing, canon and part singing
  - Spoken chant and poetry
  - Weekly all-sing
  - Elective choir
- Instrumental exploration
  - Instrumental ensembles
  - Melodic and rhythmic improvisation
  - Recorder ensemble
  - Drum/percussion groups
- Notation
  - Rhythmic notation
  - Staff notation
  - Melodic notation
  - Sensorial and intellectual exploration of scales and modes
- Sound exploration
  - Exploration of sound production
  - Instrument making
  - Directed listening

Art

Key lessons include drawing and design elements, clay, painting, color theory, printmaking, drafts, bookmaking, and art appreciation. The study of art history connects students to the whole human family. In addition, the students are encouraged to embellish classroom work, to make booklets, models, dioramas, puppets or other visual supports to their research. Creation of props and sets for the class plays is also an important aspect of the art curriculum.

- Drawing
  - A variety of media and techniques
- Painting
  - A variety of media and techniques
- Sculpture
  - A variety of media
- Color
  - Theory and application
- Design
  - Elements and principles of art
  - A variety of media

• Clay
• Bookmaking
• Weaving
• Printmaking
• Collage
• Pâpier maché
• Set making
• Art appreciation

Physical Education
• Low organizational group games
• Ball work and usage in game play
• Manipulative
• Square dance, contra-dance, and folk dance
• Cooperative team building activities
• Fitness and conditioning
• Yoga
• Sports skills/strategy in team play
• Group games