

### Philosophy of Catholic Education

A philosophy of Catholic education begins with the faith that God, in creation, gifted us with life, became one of us in His Son Jesus, and in the Person of the Holy Spirit awaits our response to His unconditional overture of love. Jesus remains with the community He formed, witnessing and sharing the Good News in every age and with all people, ever yearning for a return of love either by a sincere response to conscience or by membership in His Church. It is from this perspective that the educational ministry of the Catholic community flows.

Education which is Catholic begins with life in the heart of the family. Parents, the primary educators, nourish values deeply human, deeply spiritual. Affirmed, treasured and supported by the loving witness of Christian faith communities, the child continues a lifelong response to God's love by growing and excelling through responsible involvement in the religious, academic, cultural and civic concerns of daily life.

The Catholic school is sensitive to the mandate of Jesus: "Love one another as I have loved you" as the goal toward which all Catholic education tends. The school community, in sharing this vision within an atmosphere designed to celebrate and practice love of God and neighbor, is the most effective means available to the Church for the education of youth. This vision motivates students to grow spiritually, academically, culturally, and socially. Among the values prized in the Catholic school are recognition of the dignity of the human person created in the image and likeness of God, self-discipline in the search for a moral way of life rooted in the teaching of the Gospel and appreciation of our American heritage. The heart of every Catholic school must be alive with a zeal for the Gospel, the Eucharist and the teachings of the Catholic faith, especially as they are embodied in the great *Catechism of the Catholic Church*. It must strive to form every student as a servant-leader centered in Jesus Christ's brothers and sisters in the wider community. (*Pastoral Letter, Part Two, 21*).

### Philosophy of Science Education

As people of faith, we possess a vision that is open to the wonders of the universe, which reflect the beauty of God, the Creator. Science studies the order and harmony of creation, which is reflected in the way diverse beings exist in relationship with each other. Our faith calls us to contemplation of the earth as a sacred place; of nature as a mirror of the divine.

As believers, we value the gift of life and the revelation of God in creation. We believe that God continues to create. We understand that life works best when it respects the natural order. As stewards of creation, we are called to a respect for ourselves, for the Earth, and all its life forms. By relating the study of science to the Good News of salvation, students are able to grow through faith experiences and their relationship to all life, thereby preparing them to become responsible, value-filled adults who live out the Gospel.

As science educators, we are called to engage learners in educational experiences that reflect the cohesive and interdependent nature of all science content. The ways in which students think and learn are as diverse and complex as the world in which we live. Integrating curriculum content through meaningful, relevant experiences provides the building blocks for successful thinking and problem solving – in and out of the classroom. Integrated instruction creates an environment in which students discover their strengths and make sense of what they're learning in the context of their own lives, resulting in learning that lasts a lifetime.

### Core Values Integral to Science Instruction

Academic, religious and value outcomes are parallel goals in our Catholic schools. Gospel-based values are the foundation of the science program. The science curriculum and the environment in which it is taught should center around the following core values:

- God created an ordered, beautiful universe that is good and is worth studying. The beauty and grandeur of creation points to the creator.
- The complexity and beauty and harmony of creation inspire awe and wonder. Students come to us with awe and wonder. Science education should respect and develop that natural human tendency.
- There is a truth, and it is God. The human mind can know the truth. The process of growth leads us towards the fullness of truth.
- There is a connection between faith and reason. Religion and science are not two separate worlds. Faith goes beyond reason, but does not contradict it. Scientific study and knowledge can also strengthen our awareness of God.
- As stewards of God’s creation, we have the responsibility to make choices, which respect, preserve, and protect the beauty and harmony of the natural order. Stewardship calls us to respect human life and dignity at all stages of development, as well as respect the environment.

### Overview of the Science Curriculum

The science curriculum guidelines from the Archdiocese of Denver, Office of Catholic Schools is designed to concentrate on the “big ideas” that comprise the paradigms of science. The program emphasizes the meaning and connections of science. Strands are used to connect these fundamental concepts. Four strands are identified in the curriculum: Earth and Space Science, Life Science, Physical Science, and the Nature of Science. Since the use of themes is analogous to themes in literature and history, interdisciplinary curricula can be developed to treat two or more subjects concurrently, without losing discipline-specific rigor.

The science curriculum is designed with students’ interests and experiences in mind. All students should participate fully in an activity-based program of natural sciences and applied technologies. A curriculum that focuses on a few ideas, deeply understood and is composed of many activities that are conducted in a meaningful context makes students care about the results and the meaning of the concept. As students construct their own meaning, they take greater responsibility for developing their own conceptual models. The student’s enthusiasm and natural curiosity acts as a springboard for further investigations, allowing for more in-depth study. Students are encouraged to grapple with the ideas, issues, and interest that make up our contemporary understanding of science and technology. Among the most important intents of the science curriculum is the lasting interest in and motivation for future successes in the sciences for all students.

**Summative Projects** are provided in each of the four strands in grades K-8 to allow students to demonstrate the knowledge and skills they have acquired. The projects assess if students know and can do what the objectives identify as the learning goals for each area.

The science curriculum strives to guide teachers to prepare students who will make significant contributions to society, and influence future scientific decisions, based on Gospel values.

## **Document Design Process**

In the fall of 2007 a committee of teachers gathered to revise the Science Curriculum Guideline for the Catholic Schools in the Archdiocese of Denver. Before beginning their work, they surveyed teachers who had been using the existing Science Curriculum Guideline and asked them four questions:

1. Are you familiar with the current curriculum guideline? How do you use it to plan instruction?
2. What do you like the most and hope we keep the same in the new revision?
3. What topics or areas are missing from your grade level? What should we consider adding to the Guidelines to make them more helpful to you - more user friendly?
4. What should we consider taking out and why? (Not developmentally appropriate; too technically difficult; etc.)

Teacher responses indicated that most teacher were using the guidelines and found them helpful. Based on what teachers told the committee only minimal changes were made in the objectives from the Science Curriculum Guidelines published in 2002.

The bulk of the time and effort of the committee was spent in designing summative projects for each of the four strands in grades K-8. Summative projects are designed to provide a platform for students to independently demonstrate that they know and can do what the objectives outline as their science learning. The goal of the committee was to provide an assessment that is authentic, done in class by students without the assistance of the teacher, and is not based on a paper-and-pencil response as are so many tests. The goal of summative projects is to improve student learning and to assist teachers to become more effective teachers. Committee members were able to pilot some of the projects and to have some of the teachers in their schools pilot them. We are grateful for their assistance in ensuring the quality of these projects.

Many thanks to the members of the committee and their schools for the gift of their time and energy to this project. Committee members brought classroom expertise, personal knowledge, enthusiasm, and dedication to monthly meetings.

### **COMMITTEE MEMBERS**

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