

Archdiocese of Philadelphia Secondary School System Science Standards

Science is a process that studies and analyzes research and investigation done by others; it also provides a means of pursuing original research and investigation. Science is an inquiring, creative process in itself, more than merely a collection of facts. It questions all things, rejecting the notion that ideas are unchangeable, and opens itself to continual scrutiny and modification. Science and religion are compatible, and science education provides a Catholic ethic to debate societal issues involving science.

The Catholic school community strives to make its faith commitment a complement to academic excellence by developing a curriculum that leads all students to Christ as it prepares them for a successful life in the twenty-first century. It is a curriculum that recognizes the sanctity of each human life while affirming the dignity of each person as a unique creation of God. It is a curriculum that is intended to offer all students the opportunity to study the world at many levels of complexity, through a variety of courses.

Science incorporates carefully developed and integrated components:

- **Nature of science** – *the unique ways in which scientists search for answers to questions about the natural world, includes: knowledge, observation, classification, inference, prediction, measurement, hypothesis, experimentation and data interpretation.*
- **Unifying themes of science** – *the concepts, generalizations and principles that result from and lead to inquiry.*
- **Knowledge** – *facts, principles, theories and laws that are verifiable through scientific inquiry by the world community of scientists, includes: biological sciences, earth sciences, chemistry and physics.*
- **Inquiry** – *method of inquiry and process that includes universal verification of answers to questions about, and explanations for, natural objects, events and phenomena.*
- **Process skills** – *the skills used to acquire and apply knowledge of science. These skills include: observation, classification, inference, prediction, measurement, estimation, communication, hypothesis, tests and experimentation, model formation and data interpretation.*

- **Problem solving** – the ability to analyze a problem, make a plan for reaching a solution, application of the required mathematical models, and verification of the reasonableness of an answer. This process forms the link for interactions between Catholic moral considerations and scientific and technological results or findings.
- **Technology** – the application of tools, materials, processes and systems by humans to educate, to solve problems and to provide benefits to mankind; combines the knowledge of content, process and skills to provide a holistic approach to learning and science.
- **Scientific thinking** – the ability to be open-minded (objective) in experimentation, data collection and interpretation, information gathering, and verification of answers and explanations.