

High School General Science

Guidelines for Human Sexuality Education

Based on the understanding that human sexuality education is a right and responsibility of parents, teachers whose curricular material includes human sexuality content are obligated to work together with parents to ensure that parents know what is being taught to their children and how it is being covered.

In High School General Science, some curricular areas address human sexuality education. Please keep the parents of your students informed about the timeline of topics relating to human sexuality in your curriculum.

Please consult with your principal and/or pastor to determine the local directives on parental collaboration that are aligned with directives outlined in the May 4, 2011 letter from Bishop William Patrick Callahan. A copy of that letter can be found in the front pocket of this curriculum binder.

Standard A: Science Connections that reveal God’s creation

DIOCESAN REQUIREMENTS
CONCEPTS, SKILLS, & CATHOLIC FAITH CONNECTIONS
1. Understand how themes are used to organize and enlarge knowledge (eg. systems, order, organization, interactions, constancy, change, evolution, equilibrium, energy, form & function)
2. Connect and integrate themes to what students know about themselves and the world around them.
3. Make reasonable predictions (hypotheses) that are supported by observations and/or prior knowledge.
4. Evaluate how past theories have influenced present ones and how present theories may develop future ones.

LOCAL LEVEL SCHOOL ELEMENTS					
Text/Unit Alignment	Quarter / Date Taught				
	1	2	3	4	Assessment

RELIGIOUS RESOURCES	COMMON CORE STANDARDS
<p>DRC: Social Teaching I Principles of Catholic Social Teaching B. God is the source of civil authority CCC: 159 The same God who reveals mysteries and infuses faith bestows reason CCC: 2294 Science & technology are at the service of the human person</p> <p>United States Catholic Conference of Bishops (USCCB) http://www.usccb.org/ departments – environmental justice & domestic social development</p> <p>Catholic News Service http://www.ncregister.com news coverage of all things Catholic</p> <p>ACTIVITY Research how St. Thomas Aquinas synthesized the work of Aristotle into modern scientific thought.</p>	<p>Earth and Space Science Core Idea 2: Earth is a complex and dynamic 4.6 billion-year-old system of rock, water, air, and life. A. Continental drift, plate tectonics, and earth’s internal heat B. Earth’s materials C. Earth’s history</p> <p>Engineering and Technology Core Idea 1: The study of the designed world is the study of designed systems, processes, materials, and products and of the technologies and the scientific principles by which they function. A. Products, processes, and systems B. Nature of technology C. Using tools and materials</p> <p>Core Idea 2: Engineering design is a creative and iterative process for identifying and solving problems in the face of constraints. A. Defining and researching technological problems B. Generating and evaluating solutions C. Optimizing and making tradeoffs</p>

DRC: Diocesan Religion Curriculum

CCC: Catechism of the Catholic Church

Standard B: The Nature of Science as created by God and discovered by man

DIOCESAN REQUIREMENTS	
CONCEPTS, SKILLS, & CATHOLIC FAITH CONNECTIONS	
1.	Understand that science is ongoing and inventive and is marked by both constancy and change.
2.	Show how basic research leads to new discoveries.
3.	Show how applied research leads to inventions, technology, and applications.
4.	Realize that scientific knowledge offers the best possible explanations of the natural world, is developed from observations and inferences, and follows the accepted rules of the scientific method.
5.	Understand that although science can lead to new possibilities, the moral and ethical implications must be evaluated according to God’s law.
6.	List and discuss questions that are not testable in science.
7.	Describe how past cultures have influenced scientific research and discovery throughout history.

LOCAL LEVEL SCHOOL ELEMENTS					
Text Alignment	Quarter / Date Taught				
	1	2	3	4	

RELIGIOUS RESOURCES

DRC: Christian Morality IV Moral Judgment
 A. Conscience is an application of the moral law
 B. The components of moral choice are the object, intention, and circumstances
 C. The ends do not justify the means
CCC: 50 We can know God by His work
 159 There is no discrepancy between faith and reason
 2293 – 2294 Science and technology require respect for moral criteria and are meant to benefit all
 2464 The 8th Commandment forbids misrepresenting the truth
 2467 Man is obligated to be truthful
Fides et Ratio (Faith & Reason) – Pope John Paul II

ACTIVITIES
 Describe how the work of Catholic churchmen laid the groundwork for today’s scientific understanding and/or completed the preliminary work of others.
 Discuss the difference between what science can do and what it should do.
 Describe how the Christian view of an orderly and rational universe was indispensable to the development of science. (Introduction)

COMMON CORE STANDARDS

Engineering and Technology
 Core Idea 1: The study of the designed world is the study of designed systems, processes, materials, and products and of the technologies and the scientific principles by which they function.
 A Products, processes, and systems
 B Nature of technology
 C Using tools and materials
 Core Idea 2: Engineering design is a creative and iterative process for identifying and solving problems in the face of constraints.
 A Defining and researching technological problems
 B Generating and evaluating solutions
 C Optimizing and making tradeoffs
 Core Idea 4: In today’s modern world everyone makes technological decisions that affect or are affected by technology on a daily basis. Consequently, it is essential for all citizens to understand the risks and responsibilities that accompany such decisions.
 A. Interactions of technology and society
 B. Interactions of technology and environment
 C. Analyzing issues involving technology and society

DRC: Diocesan Religion Curriculum

CCC: Catechism of the Catholic Church

Standard E: Earth and Space Science as created by God

DIOCESAN REQUIREMENTS
CONCEPTS, SKILLS, & CATHOLIC FAITH CONNECTIONS
1. Identify internal and external energies and forces such as geochemical energy and gravity.
2. Show how these energy sources have an impact on systems.
3. Describe movement of matter.
4. Describe the theories of origins and evolution of the Universe and Earth and place events on the geologic timetable.
5. Analyze past and projected uses of resources, as well as the limitations and consequences of such use.
6. Explain the design of the solar system.
7. Evaluate and debate the merits of space exploration.

LOCAL LEVEL SCHOOL ELEMENTS					
Text Alignment	Quarter / Date Taught				Assessment
	1	2	3	4	

RELIGIOUS RESOURCES	COMMON CORE STANDARDS
<p>www.usccb.org go to departments Environmental Justice Program</p> <p>ACTIVITIES Discuss the role the Jesuits played in the development of astronomy and seismology and the accomplishments of Blessed Nicolaus Steno.</p> <p>Watch video of the Apollo 8 crew reading from the Book of Genesis on Christmas 1968.</p>	<p>Earth and Space Science Core Idea 1: Humans are a small part of a vast Universe; planet Earth is part of the Solar System which is a part of the Milky Way galaxy, which is one of hundreds of billions of galaxies in the Universe.</p> <ul style="list-style-type: none"> A. The Universe B. Gravity, energy, and matter in the Universe C. Earth and the Solar System <p>Core Idea 2: Earth is a complex and dynamic 4.6 billion-year-old system of rock, water, air, and life.</p> <ul style="list-style-type: none"> A. Continental drift, plate tectonics, and earth’s internal heat B. Earth’s materials C. Earth’s history <p>Core Idea 3: Earth’s surface continually changes from the cycling of water and rock driven by sunlight and gravity.</p> <ul style="list-style-type: none"> A. The roles of water in Earth’s surface processes B. Formation and alteration of rocks and landforms C. Weather and climate D. Biogeology

Standard F: Life and Environmental Science as created by God

DIOCESAN REQUIREMENTS
CONCEPTS, SKILLS, & CATHOLIC FAITH CONNECTIONS
1. State the relationship between cell structure and function, including single vs. multicellular organisms, differentiation, and regulation.
2. Explain heredity at a molecular level, how it relates to cellular and life cycles, and patterns of heredity.
3. Explain how evolution works by natural selection or selective breeding, including how sensory and nervous systems evolve to respond to internal and external stimuli.
4. Explain how evolution results in a diversity of species and how classification reflects those evolutionary relationships.
5. Analyze the interactions between organisms and how changes in living and non-living components of ecosystems impact that balance.
6. Follow the flow of energy and materials within organisms and through living systems including obtaining, transforming, transporting, releasing, and eliminating.

LOCAL LEVEL SCHOOL ELEMENTS					
Text Alignment	Quarter / Date Taught				
	1	2	3	4	Assessment

RELIGIOUS RESOURCES	COMMON CORE STANDARDS
<p><u>Evolution: A Catholic Perspective</u> Article written by James Statson ETWN archive www.ewtn.com/library/humanity/evolun.txt</p> <p><u>ACTIVITIES</u> Use the Genesis creation account to examine ecosystems, habitats, niches.</p> <p>Ecosystems need all parts like Paul’s image of the Body of Christ. What happens when a species is removed or a new one is introduced?</p> <p>Explore contradictions in society regarding life issues (e.g. abortion & the criminal charge of killing/harming a fetus in the womb/heroic measures to save preemies & destroying embryos for stem cell research)</p>	<p>Life Science Core Idea 1: Organisms have structures and functions that facilitate their life processes, growth, and reproduction A. Structure and function B. Growth and development of organisms C. Organization for matter and energy flow in organisms Core Idea 2: Organisms have mechanisms and processes for passing traits and variations of traits from one generation to the next A. Inheritance traits B. Variation of traits Core Idea 3; Organisms and populations of organisms obtain necessary resources from their environment which includes other organisms and physical factors. A. Independent relationships in ecosystems B. Flow of matter and energy transfer in ecosystems C. Ecosystems dynamics, stability, and resilience Core Idea 4: Biological evolution explains the unity and diversity of species. A. Evidence of common ancestry and diversity B. Genetic Variation within a species C. Natural selection and adaptation D. Biodiversity and humans</p>

DRC: Diocesan Religion Curriculum

CCC: Catechism of the Catholic Church

Standard G: Science Applications that reflect God’s goodness

DIOCESAN REQUIREMENTS
CONCEPTS, SKILLS, & CATHOLIC FAITH CONNECTIONS
1. Demonstrate an understanding of applications of science to real-life issues.
2. Analyze the impact (cost, benefit, effects) of past and current science and technological innovations on individuals and society.
3. Evaluate data (considering sources of information), validity, and short & long term implications of solutions to a problem and advocate for the most reasonable solution(s)
4. Demonstrate awareness and understanding of current developments in scientific fields.
5. Explore careers in science and technology.

LOCAL LEVEL SCHOOL ELEMENTS					
Text Alignment	Quarter / Date Taught				
	1	2	3	4	Assessment

RELIGIOUS RESOURCES	COMMON CORE STANDARDS
<p>www.usccb.org click on departments</p> <ul style="list-style-type: none"> • Catholic Campaign for Human Development • Environmental Justice Program • Science and Human Values • Justice, Peace, and Human Development <p><u>ACTIVITIES</u> Focus on groups that support Catholicism in careers. (Catholic Medical Association, International Catholic Lawyers Society, and National Catholic Bioethics Center).</p> <p>Invite practicing Catholics in science/healthcare fields to be guest speakers about how their faith influences their work.</p>	<p>Engineering and Technology Core Idea 1: The study of the designed world is the study of designed systems, processes, materials, and products and of the technologies and the scientific principles by which they function.</p> <ul style="list-style-type: none"> A. Products, processes, and systems B. Nature of technology C. Using tools and materials <p>Core Idea 3: People are surrounded and supported by technological systems. Effectively using and improving these systems is essential for long-term survival and prosperity.</p> <ul style="list-style-type: none"> A. Identifying and modeling technological systems B. Life cycles and maintenance of technological systems C. Control and feedback <p>Core Idea 4: In today’s modern world everyone makes technological decisions that affect or are affected by technology on a daily basis. Consequently, it is essential for all citizens to understand the risks and responsibilities that accompany such decisions.</p> <ul style="list-style-type: none"> A. Interactions of technology and society B. Interactions of technology and environment C. Analyzing issues involving technology and society

DRC: Diocesan Religion Curriculum

CCC: Catechism of the Catholic Church

Standard H: Personal, Social, and Moral Aspects of Science

DIOCESAN REQUIREMENTS
CONCEPTS, SKILLS, & CATHOLIC FAITH CONNECTIONS
1. Show how science influences personal and social perspectives.
2. Show how non-scientific perspectives (social values, ethics, beliefs, and timeframes) influence policy decisions related to science.
3. Investigate current proposals or plans in resource management and evaluate the costs, benefits, risks, and consequences to the environment and local communities.
4. Propose and evaluate (using models and/or explanations) scientific and technological solutions to a problem.
5. Recognize and explore moral implications and issues in scientific inquiry and technology.
6. Promote God’s commandments as expressed through Catholic virtues and moral teaching – especially respect for life, the sanctity of human life, and stewardship.

LOCAL LEVEL SCHOOL ELEMENTS					
Text Alignment	Quarter / Date Taught				
	1	2	3	4	Assessment

RELIGIOUS RESOURCES
<p>www.usccb.org click on departments pick appropriate department</p> <p>ACTIVITIES Evaluate the influence of the media on scientific issues.</p> <p>Put together a personal action plan to think globally and cat locally. Consider what change you can effect personally.</p> <p>Differentiate between popular opinion and Church teaching. (“What is right is not always popular; what is popular is not always right.”) Evaluate arguments, and defend Church teaching.</p>

COMMON CORE STANDARDS
<p>Earth and Space Science Core Idea 4: Human activities are constrained by and, in turn, affect all other processes at Earth’s surface. A. Natural hazards B. Natural resources C. Human impact on the Earth D. Global climate change</p> <p>Engineering and Technology Core Idea 2: Engineering design is a creative and iterative process for identifying and solving problems in the face of constraints. A. Defining and researching technological problems B. Generating and evaluating solutions C. Optimizing and making tradeoffs</p> <p>Core Idea 4: In today’s modern world everyone makes technological decisions that affect or are affected by technology on a daily basis. Consequently, it is essential for all citizens to understand the risks and responsibilities that accompany such decisions. A. Interactions of technology and society B. Interactions of technology and environment C. Analyzing issues involving technology and society</p>

DRC: Diocesan Religion Curriculum

CCC: Catechism of the Catholic Church