

Catholic Identity: Integration of Our Faith

- 5.1A display a deep sense of wonder and delight about the natural universe *
- 5.1B describe the unity of faith and reason *
- 5.1C describe relationships, elements, underlying order, harmony, and meaning *
- 5.1D share concern and care for the environment as part of God's creation *

Learning Process Standards

5.2 The student uses scientific practices during laboratory and scientific investigations and uses critical thinking and scientific problem solving to make informed decisions. The student will explain how science limits its focus to “how” things physically exist and is not designed to answer issues of meaning, the value of things, or the mysteries of the human person. * The student will list the basic contributions of significant Catholics to science. *

Tools to Know

- 5.2A plan and conduct investigations
- 5.2B collect information using appropriate scientific tools

Ways to Show

- 5.2C record and organize data and observations
- 5.2D communicate observations about investigations
- 5.2E represent the natural world using models

Physical Properties of Matter

5.3 Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student will explain what it means to say that God created the world and all matter out of nothing at a certain point in time. *

Applied Standards

- 5.3A classify matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy

Supporting Standards

- 5.3A.1 demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand or sand and water
- 5.3A.2 identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water

Force, Motion, and Energy

5.4 Force, motion, and energy. The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems.

- 5.4A explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy
- 5.4B demonstrate that the flow of electricity in closed circuits can produce light, heat, or sound
- 5.4C demonstrate that light travels in a straight line until it strikes an object and is reflected or travels through one medium to another and is refracted
- 5.4D design a simple experimental investigation that tests force on an object

Earth

5.5 Earth and space. The student knows that Earth consists of useful resources and its surface is constantly changing. The student will accept the premise that nature should not be manipulated simply at man's will or only viewed as a thing to be used, but that man must cooperate with God's plan for himself and for nature. *

- 5.5A explore the processes that led to the formation of fossil fuels
 - 5.5A.1 recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, or ice
 - 5.5A.2 identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation

5.5A.3 explain the processes of conservation, preservation, overconsumption, and stewardship in relation to caring for that which God has given us. *

Weather

5.5 Earth and space. The student knows that there are recognizable patterns in the natural world among the Sun, Earth, and Moon system and describes God’s relationship with man and nature. * The student will explain how creation is an outward sign of God’s love and goodness and therefore, is “sacramental” in nature. *

5.5B use data to predict changes in weather

5.5B.1 differentiate between weather and climate

5.5C explain how the Sun and the ocean interact in the water cycle

5.5C.1 describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process

Space

5.5 Earth and space. The student displays a sense of wonder about the universe and an understanding that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon systems.

5.5D demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky

5.5D.1 list the basic contributions of significant Catholics to science such as Galileo, Copernicus and others.

5.5E identify and compare the physical characteristics of the Sun, Earth, and Moon

Organisms and Environments

5.6 Organisms and environments. The student knows that there are relationships, systems, and cycles within environments and explains these as outward signs of God’s love. *

5.6A observe the way organisms live and survive in their ecosystem by interacting with the living and nonliving components

5.6A.1 predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways

5.6A.2 identify fossils as evidence of past living organisms and the nature of the environments at the time using models

5.6B describe the flow of energy within a food web, including the roles of the Sun, producers, consumers, and decomposers

Adaptions and Behaviors

5.6 Organisms and environments. The student knows that organisms have structures and behaviors that help them survive within their environments and explains these as examples of the beauty evident in God’s creation. *

5.6C compare the structures and functions of different species that help them live and survive in a specific environment such as hooves on prairie animals or webbed feet in aquatic animals

5.6C.1 list the basic contributions of significant Catholics to science such as Mendel and others

5.6D differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle