

Jackson Area Catholic Schools

**Science Academic Standards
for
Eighth Grade**

Scientific Inquiry

- SI.08.01** The student will generate scientific questions based on observations, investigations, and research.
- SI.08.02** The student will design and conduct scientific investigations.
- SI.08.03** The student will use tools and equipment appropriate to scientific investigations.
- SI.08.04** The student will use metric measurement devices in an investigation.
- SI.08.05** The student will construct charts and graphs from data and observations.
- SI.08.06** The student will identify patterns in data.
- SI.08.07** The student will analyze information from data tables and graphs to answer scientific questions.
- SI.08.08** The student will evaluate data, claims, and personal knowledge through collaborative science discourse.
- SI.08.09** The student will communicate and defend findings of observations and investigations.
- SI.08.10** The student will draw conclusions from sets of data from multiple trials of a scientific investigation.
- SI.08.11** The student will use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.
- SI.08.12** The student will describe limitations in personal and scientific knowledge.
- SI.08.13** The student will identify the need for evidence in making scientific decisions.
- SI.08.14** The student will evaluate scientific explanations based on current evidence and scientific principles.

Science Standards

Eighth Grade

Scientific Inquiry (cont.)

- SI.08.15** The student will demonstrate scientific concepts through various illustrations, performances, models, exhibits and activities.
- SI.08.16** The student will design solutions to problems through the use of technology.
- SI.08.17** The student will describe the effect humans and other organisms have on the balance of the natural world.
- SI.08.18** The student will describe what science and technology can and cannot reasonably contribute to society.
- SI.08.19** The student will describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.

Life Science

- LS.08.01** The student will differentiate between biomes based on location, climate, temperature, and life forms.
- LS.08.02** The student will be able to explain the water cycle.
- LS.08.03** The student will explain the nitrogen cycle in terms of plants, soil and atmosphere.
- LS.08.04** The student will describe the likely succession of a given ecosystem over time.
- LS.08.05** The student will identify environmental impacts of humans on ecosystems.
- LS.08.06** The student will describe the energy flow through ecosystems.
- LS.08.07** The student will describe population ecology according to the interaction and balance between plants and animals.
- LS.08.08** The student will participate in the Drug Education Program.
- LS.08.09** The student will analyze choices that will promote a healthy lifestyle including responsibility issues and stress management.

Earth Science

- ES.08.01** The student will describe major features of the Earth's surface and plate tectonics.
- ES.08.02** The student will give evidence of water existing naturally in three states on the Earth's surface.
- ES.08.03** The student will trace the path that rain water follows after it falls.
- ES.08.04** The student will describe how rainwater in Michigan reaches the oceans.
- ES.08.05** The student will describe the composition and layers of the atmosphere.
- ES.08.06** The student will describe weather conditions, climate and seasons.
- ES.08.07** The student will describe and predict patterns and measurements of weather changes.
- ES.08.08** The student will explain the water cycle and its relationship to weather changes.
- ES.08.09** The student will recognize common agents of polluted air and their health effects.
- ES.08.10** The student will describe patterns of air movement and how they affect weather conditions using weather maps.
- ES.08.11** The student will explain changes in climate over long periods of time.
- ES.08.12** The student will recognize the impact of human activities on the atmosphere and describe means for limiting pollution.
- ES.08.13** The student will describe the Sun, Earth and Moon, and their motions.
- ES.08.14** The student will compare other planets to Earth in terms of life, atmosphere and gravity.
- ES.08.15** The student will describe comets and solar system.

Physical Science

- PS.08.01** The student will classify common objects and substances according to observable attributes.
- PS.08.02** The student will describe common physical changes in matter (size, shape, melting, and freezing) and the heat energy exchanged.
- PS.08.03** The student will describe and compare objects in terms of mass, volume and density.
- PS.08.04** The student will measure mass, volume, density, dimensions and temperature of appropriate objects and materials (using metrics).
- PS.08.05** The student will identify properties of materials which make them useful.
- PS.08.06** The student will identify forms of energy associated with common phenomena.
- PS.08.07** The student will describe how common forms of energy can be converted.
- PS.08.08** The student will describe energy and the many common forms it takes (mechanical, heat, light, sound, electrical).
- PS.08.09** The student will describe the interaction of magnetic materials with other magnetic materials and non-magnetic materials.
- PS.08.10** The student will describe the interaction of charged materials with other charged or uncharged materials.
- PS.08.11** The student will describe possible electrical hazards to be avoided at home and school.
- PS.08.12** The student will describe electron flow in simple electrical circuits.
- PS.08.13** The student will use electric currents to create magnetic fields.
- PS.08.14** The student will describe how interacting wires and magnets can produce electric currents.
- PS.08.15** The student will construct and explain simple circuits using wires, light bulbs, fuses, switches and power sources.

Physical Science (cont.)

- PS.08.16** The student will describe the forces exerted by magnets, electrically charged objects and gravity.
- PS.08.17** The student will classify substances as elements, compound or mixtures.
- PS.08.18** The student will describe matter as consisting of extremely small particles (atoms) which bond to form molecules.
- PS.08.19** The student will describe the arrangement and motion of molecules in solids, liquids, gases and plasma matter.
- PS.08.20** The student will describe and explain the structural parts of atoms and their charges.
- PS.08.21** The student will describe common physical changes in materials; evaporation, condensation, thermal expansion, contraction and sublimation.
- PS.08.22** The student will describe the unusual properties of water (crystal structure, expansion when cooled to solid, contraction when heated to liquid).
- PS.08.23** The student will describe common chemical changes in terms of properties of reactants and products.
- PS.08.24** The student will distinguish between physical and chemical changes.
- PS.08.25** The student will explain chemical changes in terms of the arrangement and motion of atoms and molecules.
- PS.08.26** The student will explain physical changes in terms of the arrangement and motion of atoms and molecules.
- PS.08.27** The student will explain how mass is conserved in physical and chemical changes.
- PS.08.28** The student will describe nuclear changes in terms of the properties of reactants and products.
- PS.08.29** The student will describe how waste products accumulating from natural and technological activity create pollution.
- PS.08.30** The student will describe, compare and contrast changes in atoms and/or molecules during physical, chemical or nuclear changes.

Physical Science (cont.)

- PS.08.31** The student will describe energy changes associated with physical, chemical and nuclear changes.
- PS.08.32** The student will describe, compare, and contrast relative magnitude of energy changes involved in physical, chemical or nuclear reactions.
- PS.08.33** The student will construct simple objects that fulfill a technological purpose.
- PS.08.34** The student will design strategies for moving objects by applications of forces, including the use of simple machines.