

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.A.1

Strand: Science Connections

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Connections	Develop personal understanding of the science themes by using the themes to frame questions about science related issues and problems.

Performance Indicators		
<ol style="list-style-type: none"> <li>1. Develop an understanding of the main features of the germ theory and use this understanding to frame questions about disease/health related issues and problems.</li> <li>2. Develop an understanding of the main features of a heliocentric system and use the features of this system to frame questions about a solar system/galaxy/universe.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.A.2

Strand: Science Connections

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Connections	Describe limitations of science systems.

Performance Indicator
<ol style="list-style-type: none"> <li>1. Describe how a science system consists of many parts that usually influence one another.</li> <li>2. Describe how a science system may not work as well (or not at all) if a part of it is missing, broken, worn out, mismatched, or misconnected.</li> </ol>

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.A.3

Strand: Science Connections

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Connections	Defend explanations and models by collecting and organizing evidence that supports them and critique explanations and models by collecting and organizing evidence that conflicts with them.

Performance Indicator		
1. Explain that by its nature, a model is different from the real thing but can be used to learn about, explain, critique, or make predictions about the real thing.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.A.4

Strand: Science Connections

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Connections	Collect evidence to show that models develop as explanations for events were and are based on the evidence available to scientists at the time.

Performance Indicator		
1. Demonstrate that different models can be used to represent the same physical phenomena, concept, proposition, or theory.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.A.6

Strand: Science Connections

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Connections	Use models and explanations to predict actions and events in the natural world.

Performance Indicator
<ol style="list-style-type: none"> <li>1. Use models to make predications about actions/events in the natural world.</li> <li>2. Demonstrate that the usefulness of a model to describe/predict may be limited if it is too simple, or if it is unnecessarily complicated.</li> </ol>

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.A.7

Strand: Science Connections

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Connections	Design real or thought investigations to test the usefulness and limitations of a model.

Performance Indicator		
1. Ask appropriate questions in appropriate situations and attempt reasonable answers.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.B.1

Strand: Nature of Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Nature of Science	Describe how scientific knowledge and concepts have changed over time in the earth and space, life and environment and physical sciences.

Performance Indicator		
1. Describe how scientific knowledge is subject to modification or change. For example, new information challenges existing theories; a new theory leads to looking at old observations in a new way.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.B.2

Strand: Nature of Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Nature of Science	Identify and describe major changes that have occurred over time in conceptual models and explanations in the earth and space, life and environmental and physical science and identify the people, cultures, and conditions that led to these developments.

Performance Indicator
<ol style="list-style-type: none"> <li>1. Identify and describe the main changes in scientists’ conceptions of the germ theory and the role played by microscopes in making germs in diseased tissue visible. Key scientist; Pasteur</li> <li>2. Identify and describe the main features of the heliocentric theory, and contrast them with those of the geocentric theory. Key scientists: Copernicus, Ptolemy, Kepler.</li> </ol>

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.B.3

Strand: Nature of Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Nature of Science	Explain how the general rules of science apply to the development and use of evidence in science investigations, model-making and applications.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Explain why we can expect to get a very similar result when a scientific investigation is repeatedly done in the same way.</li> <li>2. Explain that scientific investigations may take many different forms. For example, observing how things are alike and what is happening, collecting specimens for analysis, and doing experiments.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.B.5

Strand: Nature of Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Nature of Science	Explain ways in which science knowledge is shared, checked, and extended, and show how these processes change over time.

Performance Indicator
1. Explain that scientific knowledge is shared through publications.

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.B.6

Strand: Nature of Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Nature of Science	Explain the ways in which scientific knowledge is useful and also limited when applied to social issues.

Performance Indicator		
1. Explain that the process of science is heavily influenced by and dependent on what else is happening in society or history.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.C.1

Strand: Science Inquiry

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Inquiry	Identify a question “they” can investigate using resources and equipment they have available.

Performance Indicator		
1. Pose questions that can be answered through scientific investigations.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.C.2

Strand: Science Inquiry

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Inquiry	Identify data and locate sources of information including personal records to answer the questions being investigated.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Use tools to gather, analyze and interpret data.</li> <li>2. Recognize data that does not fit a pattern.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.C.3

Strand: Science Inquiry

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Inquiry	Design and safely conduct investigations that provide reliable quantitative or qualitative data, as appropriate, to answer “their” questions.

Performance Indicator		
1. Use knowledge of subject matter to conduct investigations and create explanations.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.C.4

Strand: Science Inquiry

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Inquiry	Use inferences to help decide possible results of their investigations, use observations to check “their” inferences.

Performance Indicator
<ol style="list-style-type: none"> <li>1. Form a logical argument about cause and effect relationships in experiments.</li> <li>2. Use mathematics to structure convincing explanations.</li> </ol>

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.C.10

Strand: Science Inquiry

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Inquiry	Discuss the importance of individual results and implications of individual work with peers, teachers, and other adults and raise further questions, which still need to be answered.

Performance Indicator		
1. Summarize results of others' investigations. 2. Listen to and respect the explanations proposed by other students.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.D.2

Strand: Physical Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Physical Science	Use the major ideas of atomic theory and molecular theory to describe physical and chemical interactions among substances, including solids, liquids and gases.

Performance Indicator		
1. Demonstrate how mixtures can be formed and separated using the characteristic properties of each.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.D.3

Strand: Physical Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Physical Science	Understand how chemical interactions and behaviors lead to new substances with different properties.

Performance Indicator		
1. Explain how elements may combine to form compounds.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.D.5

Strand: Physical Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Physical Science	While conducting investigations, explain the motion of objects by describing the forces acting on them.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Investigate how simple machines such as levers, pulleys, axles, inclined planes and screws make work easier.</li> <li>2. Explain movement of light and sound waves by conducting experiments.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.D.7

Strand: Physical Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Physical Science	While conducting investigations of common physical and chemical interactions occurring in the laboratory and the outside world, use commonly accepted definitions of energy and the idea of energy conservation.

Performance Indicator		
1. Explain what happens to earth’s energy in a day.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.D.8

Strand: Physical Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Physical Science	Describe and investigate the properties of light, heat, gravity, radio waves, magnetic fields, and sound waves as they interact with material objects in common situations.

Performance Indicator		
1. Investigate and categorize the different forms of energy.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.D.9

Strand: Physical Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Physical Science	Explain the behaviors of various forms of energy by using the models of energy transmission, both in laboratory and in real-life situations in the outside world.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Use models to explain the behavior of light and sound.</li> <li>2. Demonstrate the relationship between kinetic and potential energy.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.E.1

Strand: Earth and Space Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Earth and Space Science	Using the science themes, explain and predict changes in major features of land, water, and atmospheric systems.

Performance Indicator		
1. Explain and predict changes in landforms, atmosphere and environment.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.E.2

Strand: Earth and Space Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Earth and Space Science	Describe underlying structures of the earth that cause changes in the earth's surface.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Describe the movement of earth plates.</li> <li>2. Describe how rocks brought to the surface by the forces that drive plate motion continue the rock cycle.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.E.3

Strand: Earth and Space Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Earth and Space Science	Using the science themes during the process of investigation, describe climate, weather, ocean currents, and changes in the forces acting on the earth.

Performance Indicator		
1. Describe the relationship of the forces as they act on the earth's oceans, tectonic plates and weather.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.E.4

Strand: Earth and Space Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Earth and Space Science	Using the science themes, analyze the influence living organisms have had on the earth's systems, including their impact on the composition of the atmosphere and the weathering of rocks.

Performance Indicator		
1. Demonstrate that rocks at the earth's surface weather, forming sediments that are buried, compacted, heated which then form new rocks.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.E.5

Strand: Earth and Space Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Earth and Space Science	Analyze the geologic and life history of the earth, including change over time, using various forms of scientific evidence.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Identify changes on earth over time.</li> <li>2. Observe how land forms have resulted from a combination of constructive and destructive forces.</li> <li>3. Show how water, air, and land can be polluted by various factors in the environment.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.F.1

Strand: Life and Environmental Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Life and Environmental Sciences	Understand the structure and function of cells, organs, tissues, organ systems, and whole organisms.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Discover how living systems at all levels of organization demonstrate the complementary nature of structure and function.</li> <li>2. Identify and compare parts that make up various living systems.</li> <li>3. Realize that the systems of the human body have a variety of structures and functions.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.F.3

Strand: Life and Environmental Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Life and Environmental Sciences	Differentiate between single-celled and multiple-celled organisms (humans) through investigation, comparing the cell functions of specialized cells for each type of organism.

Performance Indicator
1. Recognize and describe differences in single-celled and multi-cellular organisms.

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.F.4

Strand: Life and Environmental Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Life and Environmental Science	Investigate and explain that heredity is comprised of the characteristic traits found in genes within the cell of an organism.

Performance Indicator
<ol style="list-style-type: none"> <li>1. Realize that reproduction is a characteristic of all living organisms.</li> <li>2. Describe how every organism has a set of instructions (genes) specifying cell division and heredity.</li> </ol>

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.F.5

Strand: Life and Environmental Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Life and Environmental Science	Show how different structures both reproduce and pass on characteristics of their group.

Performance Indicator		
1. Realize that small differences between parents and their offspring can accumulate so that descendents can be very different from ancestors.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.F.6

Strand: Life and Environmental Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Life and Environmental Science	Understand that an organism is regulated both internally and externally.

Performance Indicator		
1. Discover that all organisms must be able to obtain and use resources, grow, and reproduce in a changing environment.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5F.8

Strand: Life and Environmental Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Life and Environmental Science	Show through investigations how organisms both depend on and contribute to the balance or imbalance of population and/or ecosystems, which in turn contribute to the total system of life on the planet.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Identify how various organisms depend on one another for survival.</li> <li>2. Explain the basic components and importance of the food web.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.F.9

Strand: Life and Environmental Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Life and Environmental Science	Explain how some of the changes on the earth are contributing to changes in the balance of life and affecting the survival or population growth of certain species.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Realize that environments support a diversity of plants and animals that share limited natural resources.</li> <li>2. Describe how life forms are affected by changes in the earth and climate.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.F.10

Strand: Life and Environmental Science

Diocesan Standard Terra Nova Objective	Benchmark Statement
Life and Environmental Science	Project how current trends in human resource use and population growth will influence the natural environment, and show how current policies affect those trends.

Performance Indicator		
1. Describe how human activities affect ecosystems.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.G.1

Strand: Science Applications

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Applications	Identify and investigate the skills people need for a career in science or technology and identify the academic courses that a person pursuing such a career would need.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Identify and investigate the skills people need for a career in science or technology and the academic courses that a person pursuing such a career would need.</li> <li>2. Identify the skills needed to pursue careers in oceanography or meteorology.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.G.2

Strand: Science Applications

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Applications	Explain how current scientific and technological discoveries have an influence on the work people do and how some of these discoveries also lead to new careers.

Performance Indicator
<ol style="list-style-type: none"> <li>1. Explain how current scientific and technological discoveries have an influence on the work people do and how some of these discoveries also lead to new careers.</li> <li>2. Recognize the importance of new technologies for oceanic or atmospheric careers.</li> </ol>

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.G.3

Strand: Science Applications

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Applications	Illustrate the positive and negative impact that science and technology has had on careers, systems, society, environment and quality of life.

Performance Indicator		
1. Describe the impact of technology on society, environment, and everyday life.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.G.4

Strand: Science Applications

Diocesan Standard Terra Nova Objective	Benchmark Statement
Science Applications	Propose a design (or re-design) of an applied science model or a machine that will have an impact in the community or elsewhere in the world and show how the design (or re-design) might work, including potential side-effects.

Performance Indicator		
1. Build and utilize simple equipment.		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.H.1

Strand: Social and Personal Perspectives

Diocesan Standard Terra Nova Objective	Benchmark Statement
Social and Personal Perspectives	Evaluate the scientific evidence used in various media (for example, television, radio, Internet, popular press, and scientific journals) to address a social issue, using criteria of accuracy, logic, bias, relevance of data and credibility of sources.

Performance Indicator		
<ol style="list-style-type: none"> <li>1. Evaluate the scientific evidence used in various media to address a social issue, using criteria of accuracy, logic, bias, relevance of data, and credibility of sources.</li> <li>2. Create working solutions for the problems of alcoholism and drug addiction.</li> </ol>		
Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.H.2

Strand: Social and Personal Perspectives

Diocesan Standard Terra Nova Objective	Benchmark Statement
Social and Personal Perspectives	Identify local and state issues that are helped by science and technology and explain how science and technology can also cause a problem.

Performance Indicator
<ol style="list-style-type: none"> <li>1. Identify those resources that are basic materials.</li> <li>2. Examine changes in environments that can be natural or influenced b humans.</li> <li>3. Demonstrate that the size of population can increase or decrease based on many factors.</li> </ol>

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.H.3

Strand: Social and Personal Perspectives

Diocesan Standard Terra Nova Objective	Benchmark Statement
Social and Personal Perspectives	Show how science has contributed to meeting personal needs, including hygiene, nutrition, exercise, safety, and health care.

Performance Indicator
<ol style="list-style-type: none"> <li>1. Realize that alcohol, tobacco and other drugs are often abused substances.</li> <li>2. Be aware that science and technology have greatly affected the quality of life for most people.</li> </ol>

Suggested Activities	Assessment	Resources

## Diocese of Jefferson City Curriculum Guide

Content Area: Science  
 Grade Range: Fifth Grade  
 Section/Heading: 5.H.4

Strand: Social and Personal Perspectives

Diocesan Standard Terra Nova Objective	Benchmark Statement
Social and Personal Perspectives	Develop a list of issues that citizens must make decisions about and describe a strategy for becoming informed about the science behind these issues.

Performance Indicator		
1. Identify those resources that are limited.		
Suggested Activities	Assessment	Resources