



Diocese of Jackson Office of Education

5th Grade Teacher Guide

The following are the specific standards and objects for fifth grade in each subject. The completed curriculum documents should be consulted for explanation of use and implementation of these standards and to ensure vertical planning and alignment between grades. Please note this is **not** a complete curriculum document; it is only meant to be used as a supplemental resource for individual teachers.

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5th Grade- Mathematics

Operations & Algebraic Thinking

1. The student will be able to write and interpret numerical expressions.

The student will demonstrate mastery by:

- 1.1. Using parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols
- 1.2. Writing simple expressions that record calculations with numbers, and interpreting numerical expressions without evaluating them (e.g., express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$.)
- 1.3. Recognizing that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product
- 1.4. Making sense of real-world problems involving any of the four operations and writing an expression that reflects that given situation

2. The student will be able to analyze patterns and relationships.

The student will demonstrate mastery by:

- 2.1. Generating two numerical patterns using two given rules
- 2.2. Identifying apparent relationships between corresponding terms
- 2.3. Forming ordered pairs consisting of corresponding terms from the two patterns and graphing the ordered pairs on a coordinate plane (e.g., given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.)

Numbers & Operations in Base Ten

1. The student will be able to understand place value system.

The student will demonstrate mastery by:

- 1.1. Recognizing that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $1/10$ of what it represents in the place to its left (e.g., “In the number 3.33, the underlined digit represents $3/10$, which is 10 times the amount represented by the digit to its right ($3/100$) and is $1/10$ the amount represented by the digit to its left (3))
- 1.2. Explaining patterns in the number of zeros of the product when multiplying a number by powers of 10 and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10
- 1.3. Using whole-number exponents to denote powers of 10
- 1.4. Reading, writing, and comparing decimals to thousandths
- 1.5. Reading and writing decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$
- 1.6. Comparing two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons
- 1.7. Using place value to round decimals to any place

- 1.8. Fluently multiplying multi-digit whole numbers using the standard algorithm
- 1.9. Finding whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division
- 1.10 Illustrating and explaining the calculation by using equations, rectangular arrays, and/or area models
- 1.11 Adding, subtracting, multiplying, and dividing decimals to hundredths, using concrete models (to include, but not limited to: base ten blocks, number line, decimal tiles, etc.) or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relating the strategy to a written method and explain the reasoning used

Numbers & Operations with Fractions

1. The student will be able to use equivalent fractions as a strategy to add and subtract fractions

The student will demonstrate mastery by:

- 1.1. Adding and subtracting fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators (E.g., $2/3 + 5/4 = 8/12 + 15/12 = 23/12$.)
- 1.2. Solving word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using fractional models and equations
- 1.3. Using benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers

2. The student will be able to use equivalent fractions to multiply and divide fractions.

The student will demonstrate mastery by:

- 2.1. Interpreting a fraction as division of the numerator by the denominator ($a/b = a \div b$)
- 2.2. Solving word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers (e.g., by using visual fraction models or equations to represent the problem)
- 2.3. Applying and extending previous understandings of multiplication to multiply a fraction or whole number by a fraction
- 2.4. Finding the area of a rectangle with fractional side lengths by filling it with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths.
- 2.5. Multiplying fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas
- 2.6. Interpreting multiplication as scaling (resizing), by comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication

- 2.7. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1
- 2.8. Solving real world problems involving multiplication of fractions and mixed numbers by using models and equations
- 2.9. Applying and extending previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions
- 2.10. Interpreting division of a unit fraction by a non-zero whole number and computing such quotients (e.g., create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.)
- 2.11. Interpreting division of a whole number by a unit fraction and computing such quotients (e.g., create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.)
- 2.12. Solving real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions using models (e.g., how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$ -cup servings are in 2 cups of raisins?)

Measurement & Data

1. The student will be able to convert like measurement units within a given measurement system.

The student will demonstrate mastery by:

- 1.1. Converting among different-sized standard measurement units within a given measurement system (customary and metric) (e.g., convert 5 cm to 0.05 m), and using these conversions in solving multi-step, real world problems

2. The student will be able to represent and interpret data.

The student will demonstrate mastery by:

- 2.1. Making a line plot to display a data set of measurements in fractions of a unit ($1/2, 1/4, 1/8$)
- 2.2. Using operations on fractions for this grade to solve problems involving information presented in line plots. (e.g., given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally)

3. The students will be able to understand concept of volume and relate to multiplication and addition.

The student will demonstrate mastery by:

- 3.1. Recognizing volume as an attribute of solid figures and understand concepts of volume measurement
- 3.2. Measuring volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units
- 3.3. Relating volume to the operations of multiplication and addition and solving real world and mathematical problems involving volume
- 3.4. Finding the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes and showing that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base
- 3.5. Representing threefold whole-number products as volumes (e.g., to represent the associative property of multiplication)
- 3.6. Applying the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems
- 3.7. Recognizing volume as additive
- 3.8. Finding volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems
- 3.9. Making sense of an irregular rectangular prisms to find the side lengths and then uses a volume formula to find the volume of a shape

Geometry

1. The student will be able to classify two-dimensional figures into categories based on their properties.

The student will demonstrate mastery by:

- 1.1. Using a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates.
- 1.2. Understanding that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
- 1.3. Representing real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation
- 1.4. Understanding that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category (e.g., all rectangles have four right angles and squares are rectangles, so all squares have four right angles)
- 1.5. Classifying two-dimensional figures in a hierarchy based on properties

Catholic Identity Integration in Mathematics

5th Grade

Core Values of Classroom Behavior and Culture
<ol style="list-style-type: none"> 1. Provide a safe environment 2. Respect for others during mathematical arguments 3. Giving generously
Integration of Scripture and Church Teaching
<ol style="list-style-type: none"> 1. Communitive property referenced in Luke 12:52 2. Being good stewards with our money for God's Kingdom 3. Fractions: Genesis 47: 24-26, 34 4. Measuring the Arc of the Covenant, Noah's Ark, and the temples 5. Psalm 90:12 6. Revelation 21:16- study of volume and area 7. Matthew 1:17 8. Proverbs 11:1, 16:11- weights and balance compared to life
Historic Church Figures and Events
<ol style="list-style-type: none"> 1. Francois Viète- father of modern algebra 2. Johannes Widmann- came up with the + and – sign (1460- 1498) 3. Leonardo Pisano Bigollo (1170-1250)- "Fiboacci" numeral system 4. Gerolamo Cardano (1501-1576)- negative numbers 5. Rene Descartes (1596- 1650)- coordinate system 6. Antoine Lavoisier (1743- 1794)- metric system (kg) 7. Pythagorus 8. Archimedes (287 B.C.- 212 B.C.)- exponential notation

5th Grade- ELA**Reading- Literature**

Key Ideas and Details (KID)
<p>1. The student will determine central ideas and themes when reading fiction and draw logical inferences and conclusions. Students will demonstrate mastery of this standard by:</p> <p>1.1. Quoting accurately from a text when explaining what the text says explicitly and when drawing inferences from the text</p> <p>1.2. Determining a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic</p> <p>1.3. Summarizing a text</p> <p>1.4. Comparing and contrasting two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact)</p>
Craft and Structure (CS)
<p>1. The student will determine the meaning of words and phrases as they are used in a text. Students will demonstrate mastery of this standard by:</p> <p>1.1. Determining the meaning of words and phrases as they are used with figurative language such as metaphors and similes</p> <p>1.2. Explaining how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a story, drama, or poem</p> <p>1.3. Describing how a narrator's or speaker's point of view influences how events are described</p>
Integration of Knowledge and Ideas (IKI)
<p>1. The student will be able to identify story elements and compare and contrast narrative texts. Students will demonstrate mastery of this standard by:</p> <p>1.1. Analyzing how visual and multimedia elements contribute to the meaning or tone of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).</p> <p>1.2. Comparing and contrasting stories in the same genre on their approaches to similar themes and topics (e.g., mysteries and adventure stories)</p>
Range of Reading and Level of Text Complexity (RRTC)
<p>1. The student will be able to read and comprehend age appropriate text. Students will demonstrate mastery of this standard by:</p> <p>1.1. Reading and comprehending literature, including stories, dramas, and poetry, at the high end of the grades 4–6 text complexity band independently and proficiently.</p>

Reading-Informational Text

Key Ideas and Details (KID-I)

1. The student will be able to read and comprehend non-fiction text.**Students will demonstrate mastery of this standard by:**

- 1.1. Quoting accurately from a text when explaining what the text says explicitly and when drawing inferences from the text
- 1.2. Determining two or more main ideas of a text and explain how they are supported by key details; summarize the text
- 1.3. Explaining the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text

Craft and Structure (CS-I)**1. The student will analyze the structure and purpose of information.****Students will demonstrate mastery of this standard by:**

- 1.1. Determining the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area
- 1.2. Comparing and contrasting the overall structure of events, ideas, concepts, or information in two or more texts (e.g., chronology, comparison, cause/effect, problem/solution)
- 1.3. Analyzing multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent

Integration of Knowledge and Ideas (IKI-I)**1. The student will be able to explain how specific images contribute to and clarify a text.****Students will demonstrate mastery of this standard by:**

- 1.1. Drawing on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently
- 1.2. Explaining how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s)
- 1.3. Integrating information from several texts on the same topic in order to write or speak about the subject knowledgeably

Range of Reading and Level of Text Complexity (RRTC-I)**1. The student will be able to read and comprehend grade appropriate text.****Students will demonstrate mastery of this standard by:**

- 1.1. Reading and comprehending informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–6 text complexity band independently and proficiently.

Reading Foundational Skills

Word Recognition and Vocabulary (WRV)

1. **The student will apply phonics and word recognition skills when reading.**

Students will demonstrate mastery of this standard by:

- 1.1. Knowing and applying grade-level phonics and word analysis skills while decoding words
- 1.2. Using combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and prefixes and suffixes) to read accurately unfamiliar multisyllabic words in context and out of context

Fluency (F)

1. **The student will read grade-level appropriate text fluently.**

Students will demonstrate mastery of this standard by:

- 1.1. Reading with sufficient accuracy and fluency to support comprehension
- 1.2. Reading grade-level text with purpose and understanding
- 1.3. Reading grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings
- 1.4. Using context to confirm or self-correct word recognition and understanding, rereading as necessary

Writing

Text Types & Purposes (TTP)
<p>1. The student will be able to write persuasive opinion pieces. Students will demonstrate mastery of this standard by</p> <ul style="list-style-type: none"> 1.1. Introducing a topic or text clearly, stating opinion and creating a logical structure 1.2. Providing reasons that are supported by facts and details 1.3. Linking opinions and reasons with words, phrases, and clauses 1.4. Providing a conclusion that relates to the opinion
Production & Distribution of Writing (PDW)
<p>1. The student will produce and publish writing using technology. Students will demonstrate mastery of this standard by:</p> <ul style="list-style-type: none"> 1.1. Planning, revising, editing, or rewriting with guidance and support
Research to Build & Present Knowledge (RBPK)
<p>1. The student will be able to conduct research projects that use several sources to build knowledge Students will demonstrate mastery of this standard by:</p> <ul style="list-style-type: none"> 1.1. Gathering relevant information from multiple print and digital sources 1.2. Assessing the credibility and accuracy of each source 1.3. Integrating the information while avoiding plagiarism
Range of Writing
<p>1. The student will be able to write routinely over extended time frames and shorter time frames for a range of discipline-specific tasks, purposes, or audiences. Students will demonstrate mastery of this standard by:</p> <ul style="list-style-type: none"> 1.1. Developing an essay from a given prompt in a specified amount of time

Speaking & Listening

Comprehension & Collaboration (CC)

- 1. The student will be able to engage effectively in discussions.**
Students will demonstrate mastery of this standard by:
 - 1.1. Following agreed-upon rules for discussions (e.g. gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion)
- 2. The student will be able to engage and listen to a variety of media.**
Students will demonstrate mastery of this standard by:
 - 2.1. Determining main ideas and supporting details presented through various forms of media
- 3. The student will be able to summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.**
 - 3.1. Staying on topic through questioning and further elaborations during discussions

Presentation of Knowledge & Ideas (PKI)

- 1. The student will be able to report on a topic with appropriate facts.**
Students will demonstrate mastery of this standard by:
 - 1.1. Orally presenting in front of peers
 - 1.2. Composing written reports through research and prior knowledge
 - 1.3. Using real world text to introduce debates supported by research
 - 1.4. Speaking clearly and in complete sentences

Language

Conventions of Standard English (CSE)
<p>1. The student will be able to demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, and keyboarding) or speaking.</p> <p>Students will demonstrate mastery of this standard by:</p> <ul style="list-style-type: none"> 1.1. Forming and using the perfect verb tenses 1.2. Using verb tenses to convey various times, sequences, states, and conditions 1.3. Using correlative conjunctions (either/or, neither/nor) 1.4. Using a comma to separate an introductory element from the rest of a sentence 1.5. Spelling grade-appropriate words correctly, consulting references as needed
Knowledge of Language (KoL)
<p>1. The student will be able to use knowledge of language and its conventions when writing, speaking, reading, or listening.</p> <p>Students will demonstrate mastery of this standard by:</p> <ul style="list-style-type: none"> 1.1. Developing, combining, and revising grade-appropriate sentences to convey interest and style 1.2. Reading and understanding dialect in stories, dramas, or poems to expand the meaning of a text
Vocabulary Acquisition and Use (VAU)
<p>1. The student will be able to determine and clarify the meaning of unknown or multiple-meaning words and phrases based on grade 4 reading content, choosing from a range of strategies.</p> <p>Students will demonstrate mastery of this standard by:</p> <ul style="list-style-type: none"> 1.1. Using context as a clue to the meaning of a word or phrase 1.2. Using common grade-appropriate Greek and Latin prefixes, suffixes and roots as clues to the meaning of a word (e.g. tele-, photo-, auto-) 1.3. Consulting reference materials, both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases <p>2. The student will be able to demonstrate understanding of figurative language and word relationships.</p> <p>Students will demonstrate mastery by:</p> <ul style="list-style-type: none"> 2.1. Interpreting figurative language, including similes and metaphors, in context 2.2. Recognizing and explaining the meaning of common idioms, adages, and proverbs 2.3. Using the relationship between particular words to better understand each of the words (e.g. synonyms, antonyms, and homographs)

Catholic Identity Integration in English Language Arts Fifth Grade

1. The student will be able to write a persuasive text as to why going to a Catholic school, going to Church, or being a Christian is important.
2. Students will be able to discuss and/or write about positive and negative influences that social media has on morals and values using scripture as a guide.

Integration of Scripture and Church Teaching

1. Students will read the Bible to identify the themes of certain passages (e.g. parables, Jonah and the Whale, etc.)
2. Students will use the books of the Old Testament to analyze authors arguments (e.g. Compare the messages of different prophets.)
3. Students will apply reading comprehension skills when reading Scripture passages.

Historic Church Figures and Events

1. Students will participate in discussions about the evolution of the priesthood from the disciples in the early church.

5th Grade- Science**The Process of Science****1. Students will apply science knowledge, skills, and practices to locate, translate, infer and extend from, and evaluate data and information in scientific graphs, tables, and diagrams of varying complexity.****Students will demonstrate mastery of this standard by:**

- 1.1. Selecting one piece of data from a complex data presentation.
- 1.2. Finding information in text that describes a complex data presentation
- 1.3. Selecting two or more pieces of data from a complex data presentation
- 1.4. Identifying features of a complex table, graph, or diagram (e.g., axis labels, units of measure)
- 1.5. Understanding common scientific terminology, symbols, and units of measure used in a moderately complex scientific context
- 1.6. Translating moderately complex information into a table, graph, or diagram
- 1.7. Determining how the value of a variable changes as the value of another variable changes in a moderately complex data presentation
- 1.8. Comparing data from a moderately complex data presentation (e.g., finding the highest/lowest value; ordering data from a table)
- 1.9. Combining data from a moderately complex data presentation (e.g., sum data from a table)
- 1.10. Comparing data from two or more simple data presentations (e.g. comparing a value in a table to a value in a graph)
- 1.11. Combining data from two or more simple data presentations (e.g., categorizing data from a table using a scale from another table)
- 1.12. Performing an interpolation using data in a moderately complex table or graph
- 1.13. Performing an extrapolation using data in a simple table or graph
- 1.14. Analyzing presented data when given new, simple information (e.g. reinterpreting a graph when new findings are provided)

2. Students will apply science knowledge, skills, and practices to understand the tools procedures and design of scientific experiments and to compare, extend, and modify those experiments.**Students will demonstrate mastery of this standard by:**

- 2.1. Finding information in text that describes a complex experiment
- 2.2. Identifying similarities and differences between complex experiments
- 2.3. Determining which complex experiments utilized a given tool, method, or aspect of design
- 2.4. Understanding the methods, tools, and functions of tools used in a moderately complex experiment
- 2.5. Understanding a moderately complex experimental design
- 2.6. Determining the scientific question that is the basis for a moderately complex experiment (e.g., the hypothesis)
- 2.7. Evaluating the design or methods of a simple experiment (e.g., possible flaws or inconsistencies; precision and accuracy issues)

- 2.8. Predicting the results of an additional trial or measurement in a moderately complex experiment
- 2.9. Determining what conditions in a simple experiment would produce specified results

3. Students will apply science knowledge, skills, and practices to evaluate the validity of scientific information and formulate conclusions and predictions based on that information.

Students will demonstrate mastery of this standard by:

- 3.1. Determining which hypothesis, prediction, or conclusion is, or is not, consistent with a moderately complex data presentation or piece of information in text
- 3.2. Determining which results of a moderately complex experiment support or contradict a hypothesis, prediction, or conclusion
- 3.3.** Determining which hypothesis, prediction, or conclusion is, or is not, consistent with two or more simple data presentations and/or pieces of information in text

Basics of Science

1. Students will review and understand basic concepts integral to science and its processes.

Students will demonstrate mastery of this standard by:

- 1.1. Defining and explaining the steps in the scientific method
- 1.2. Practicing lab safety skills when necessary

Literacy in Science

Standards for K–5 reading in history/social studies, science, and technical subjects are integrated into the K–5 Reading standards.

Ecology & Interdependence

1. Students will demonstrate an understanding of photosynthesis and the transfer of energy from the sun into chemical energy necessary for plant growth and survival.

Students will demonstrate mastery of this standard by:

- 1.1. Researching and communicating the basic process of photosynthesis that is used by plants to convert light energy into chemical energy that can be stored and released to fuel an organism's activities
- 1.2. Analyzing environments that do not receive direct sunlight and devise explanations as to how photosynthesis occurs, either naturally or artificially

2. Students will demonstrate an understanding of a healthy ecosystem with a stable web of life and the roles of living things within a food chain and/or food web, including producers, primary and secondary consumers, and decomposers.

Students will demonstrate mastery of this standard by:

- 2.1. Obtaining and evaluating scientific information regarding the characteristics of different ecosystems and the organisms they support

(e.g., salt and fresh water, deserts, grasslands, forests, rain forests, or polar tundra lands)

- 2.2. Developing and using a food chain model to classify organisms as producers, consumers, or decomposers and tracing the energy flow to explain how each group of organisms obtains energy
- 2.3. Designing and interpreting models of food webs to justify what effects the removal or the addition of a species (i.e., introduced or invasive) would have on a specific population and/or the ecosystem as a whole
- 2.4. Communicating scientific or technical information that explains human positions in food webs and our potential impacts on these systems

Organization of Matter & Chemical Interactions

1. Students will demonstrate an understanding of the physical properties of matter.

Students will demonstrate mastery of this standard by:

- 1.1. Obtaining and evaluating scientific information to describe basic physical properties of atoms and molecules
- 1.2. Collecting, analyzing, and interpreting data from measurements of the physical properties of solids, liquids, and gases (e.g., volume, shape, movement, and spacing of particles)
- 1.3. Analyzing matter through observations and measurements to classify materials (e.g., powders, metals, minerals, or liquids) based on their properties (e.g., color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, solubility, or density)
- 1.4. Making and testing predictions about how the density of an object affects whether the object sinks or floats when placed in a liquid
- 1.5. Designing a vessel that can safely transport a dense substance (e.g., syrup, coins, marbles) through water at various distances and under variable conditions and using an engineering design process to define the problem, design, construct, evaluate, and improve the vessel

2. Students will demonstrate an understanding of mixtures and solutions.

Students will demonstrate mastery of this standard by:

- 2.1. Obtaining and evaluating scientific information to describe what happens to the properties of substances in mixtures and solutions
- 2.2. Analyzing and interpreting data to communicate that the concentration of a solution is determined by the relative amount of solute versus solvent in various mixtures
- 2.3. Investigating how different variables (e.g., temperature change, stirring, particle size, or surface area) affect the rate at which a solute will dissolve
- 2.4. Designing an effective system (e.g., sifting, filtration, evaporation, magnetic attraction, or floatation) for separating various mixtures
- 2.5. Using the engineering design process to define the problem, design, construct, evaluate, and improve the system

3. Students will demonstrate an understanding of the difference between physical and chemical changes.**Students will demonstrate mastery of this standard by:**

- 3.1. Analyzing and communicating the results of chemical changes that result in the formation of new materials (e.g., decaying, burning, rusting, or cooking)
- 3.2. Analyzing and communicating the results of physical changes to a substance that results in a reversible change (e.g., changes in states of matter with the addition or removal of energy, changes in size or shape, or combining/separating mixtures or solutions)
- 3.3. Analyzing and interpreting data to support claims that when two substances are mixed, the total weight of matter is conserved

Motions, Forces, & Energy**1. Students will demonstrate an understanding of the factors that affect the motion of an object through a study of Newton's Laws of Motion.****Students will demonstrate mastery of this standard by:**

- 1.1. Obtaining and communicating information describing gravity's effect on an object
- 1.2. Predicting the future motion of various objects based on past observation and measurement of position, direction, and speed
- 1.3. Developing and using models to explain how the amount or type of force, both contact and non-contact, affects the motion of an object
- 1.4. Planning and conducting scientific investigations to test the effects of balanced and unbalanced forces on the speed and/or direction of objects in motion
- 1.5. Predicting how a change of force, mass, and/or friction affects the motion of an object to convert potential energy into kinetic energy
- 1.6. Designing a system to increase the effects of friction on the motion of an object (e.g., non-slip surfaces or vehicle braking systems or flaps on aircraft wings)
- 1.7. Using the engineering design process to define the problem, design, construct, evaluate, and improve the system

Earth & the Universe**1. Students will demonstrate an understanding of the locations of objects in the universe.****Students will demonstrate mastery of this standard by:**

- 1.1. Developing and using scaled models of Earth's solar system to demonstrate the size, composition (i.e., rock or gas), location, and order of the planets as they orbit the Sun
- 1.2. Using evidence to argue why the sun appears brighter than other stars
- 1.3. Describing how constellations appear to move from Earth's perspective throughout the seasons (e.g., Ursa Major, Ursa Minor, and Orion)

1.4. Constructing scientific arguments to support claims about the importance of astronomy in navigation and exploration, including the use of telescopes, compasses, and star charts

2. Students will demonstrate an understanding of the principles that govern moon phases, day and night, appearance of objects in the sky, and seasonal changes.

Students will demonstrate mastery of this standard by:

2.1. Analyzing and interpreting data from observations and research (e.g., from NASA, NOAA, or the USGS) to explain patterns in the location, movement, and appearance of the moon throughout a month and over the course of a year

2.2. Developing and using a model of the Earth-Sun-Moon system to analyze the cyclic patterns of lunar phases, solar and lunar eclipses, and seasons

2.3. Developing and using models to explain the factors (e.g., tilt, revolution, and angle of sunlight) that result in Earth's seasonal changes

2.4. Obtaining information and analyzing how our understanding of the solar system has evolved over time (e.g., Earth-centered model of Aristotle and Ptolemy compared to the Sun-centered model of Copernicus and Galileo)

Earth's Resources

1. Students will demonstrate an understanding of the effects of human interaction with Earth and how Earth's natural resources can be protected and conserved.

Students will demonstrate mastery of this standard by:

1.1. Collecting and organizing scientific ideas that individuals and communities can use to conserve Earth's natural resources and systems (e.g., implementing watershed management practices to conserve water resources, utilizing no-till farming to improve soil fertility, reducing emissions to abate air pollution, or recycling to reduce landfill waste)

1.2. Designing a process for better preparing communities to withstand manmade or natural disasters (e.g., removing oil from water or soil, systems that reduce the impact of floods, structures that resist hurricane forces)

1.3. Using the engineering design process to define the problem, design, construct, evaluate, and improve the disaster plan

Catholic Identity Integration in Science

5th Grade

Core Values of Classroom Behavior and Culture
1. Students will respect one another and adults recognizing that every individual is created by God in His image.
Integration of Scripture and Church Teaching
<p>1. Students will make a connection between their study of gravity and their spiritual lives, recognizing that God pulls us toward Himself. God is the center of gravity of our spiritual lives. We are drawn together as we are pulled collectively toward God. Scripture, tradition, Church, and sacraments pull us toward God.</p> <p>2. Students will make a connection between their study of life cycles and ecosystems and their spiritual lives recognizing that just as the Sun is the source of energy and nourishment for animals and humans, God is the source of energy and nourishment for the people of God. We receive this food through the Eucharist. Just as Jesus is blessed, broken and given to us, so too are we called to be blessed, broken and given to one another in the service of Christ (Henri Nouwen, <i>Life of the Beloved</i>, 2002)</p>
Historic Church Figures and Events
1. Students will study saints within the Church who were scientists or experts in the areas of science that they are studying.

5th Grade- Social Studies

Theme: US History: Pre-Columbian to American Revolution

Civics

- 1. The student will be able to explain how weaknesses of the Articles of Confederation led to the Constitution.**
The student will demonstrate mastery by:
 - 1.1. Identifying the features of the Bill of Rights
 - 1.2. Listing the problems of the Articles of Confederation (e.g. lack of executive branch, no taxation power, and weak central government)
 - 1.3. Identifying the contributions of the Northwest Ordinance
 - 1.4. Identifying the ideology of Federalists and Anti-Federalists facts
 - 1.5. Describing the plans and compromises that contributed to the creation of the Constitution
- 2. The student will be able to respect the rights of others in discussion and classroom debates.**
The student will demonstrate mastery by:
 - 2.1. Following rules for collegial discussions
 - 2.2. Posing relevant questions and elicit responses from classmates on a given topic
- 3. The student will be able to participate in negotiating and compromising in the resolution of differences and conflict.**
The student will demonstrate mastery by:
 - 3.1. Engaging effectively in collaborate discussions (e.g. one-on-one, in groups, and teacher led)
 - 3.2. Summarizing information presented through diverse media and formats

Economics

- 1. The student will be able to examine the various types of resources required to provide good and services.**
The student will demonstrate mastery by:
 - 1.1. Identifying the major resources of the US to determine the major industries of those countries in relation to available resources
 - 1.2. Examining why certain products are manufactured in particular places, considering conditions such as weight, transportation availability, costs, and markets
- 2. The student will be able to explain how currency makes exchange easier by comparing a bartering economy to a currency-based economy.**
The student will demonstrate mastery by:
 - 2.1. Discovering, comparing, and contrasting the characteristics of a traditional economy, a bartering economy, and a currency-based economy
 - 2.2. Examining products that are imported into markets within the United States.

- 2.3. Defining and classifying features of supply and demand
- 2.4. Examining products that are exported from the United States to other markets in the Western Hemisphere, noting how this affects the United States economy.
- 2.5. Examining the meaning of unemployment, inflation, income, and economic growth in the economy

Civil Rights

1. The student will be able to identify ways that people in roles of power can influence people's rights and freedom.

The student will demonstrate mastery by:

- 1.1. Defining people of power in our lives
- 1.2. Citing examples of people's rights and freedoms
- 1.3. Comparing groups of people who have struggled for equality and civil rights (e.g. Native Americans, African Americans, women, or other cultural, ethnic, or racial minorities in the Western Hemisphere)

2. The student will be able to describe and explain traditions and contributions of various cultures.

The student will demonstrate mastery by:

- 2.1. Defining culture
- 2.2. Recognizing ways people celebrate their diverse cultural heritage (e.g. literature, language, games, songs, dances, holidays, etc.)
- 2.3. Celebrating a variety of diverse cultural ceremonies and means of artistic expression

Geography

1. The student will be able to locate on a map the physical features of America prior to Exploration.

The student will demonstrate mastery by:

- 1.1. Identifying major landforms and bodies of water in the Western Hemisphere
- 1.2. Locating and color-coding North and South America pre-Columbian civilizations on a map
- 1.3. Exploring physical, elevation, and cultural maps of America prior to exploration and charting features of each

2. The student will be able to describe physical features of the New World.

The student will demonstrate mastery by

- 2.1. Comparing and contrasting physical features and landforms of the continents
- 2.2. Identifying how physical features impact communities
- 2.3. Describing different ways physical environments may change over time (e.g. erosion, hurricanes, etc.)

3. The student will be able to recognize maps, graphs, and other representations of the earth.

The student will demonstrate mastery by:

- 3.1. Identifying representations of the earth using technology, maps, and a globe
- 3.2. Identifying cardinal and intermediate directions (e.g., north, northeast, northwest, south, southeast, southwest, east, and west)
- 3.3. Locating Mississippi and the United States using maps and a globe

History

1. The student will be able to differentiate among pre-Columbian civilizations.

The student will demonstrate mastery by:

- 1.1. Naming and describing the different pre-Columbian civilizations
- 1.2. Comparing and contrasting the social systems of Pre-Columbian civilizations

2. The student will be able to examine the reasons and impact for exploration of the New World.

The student will demonstrate mastery by:

- 2.1. Locating and labeling a world map depicting the "Old World" and the "New World," depicting European countries of Spain, Great Britain or England, France, etc.
- 2.2. Identifying significant European explorers, their purpose, motives, and accomplishments
- 2.3. Identifying the economic motivations for European exploration and settlement in the Americas
- 2.4. Locating and labeling on maps of North and South America land claimed by Spain, France, England, and Portugal
- 2.5. Explaining the development and impact of colonization on the Columbian Exchange
- 2.6. Analyzing the relationship between early European settlers in America and the Native Americans they encountered

3. The student will be able to describe reasons for colonization of North America.

The student will demonstrate mastery by:

- 3.1. Investigating mysteries of the New World through the eyes of Europeans during pre-colonization of the Americas
- 3.2. Identifying influential leaders and groups responsible for founding colonial settlements (e.g. John Smith, Roger Williams, William Penn, Lord Baltimore, William Bradford, John Winthrop, James Oglethorpe)
- 3.3. Trace the development of democratic ideas and discuss the structure of colonial governments that influenced the early colonies (e.g. Magna Carta, Mayflower Compact, House of Burgesses representative government, town meetings)

3.4. Demonstrate an understanding of colonial economic life and labor systems in the Americas (e.g. Triangular Trade, indentured servitude, enslaved and free Africans)

4. The student will be able to chart the causes and events leading to the American Revolution and cite the reasons for the establishment of early colonies in North America.

The student will demonstrate mastery by:

4.1. Explaining the impact of the French and Indian War on the American Revolution

4.2. Describing the colonial reaction to the British Stamp Act, Intolerable Acts, Boston Massacre, and Tea Act

5. The student will be able to explain major events of the American Revolution and their outcomes.

The student will demonstrate mastery by:

5.1. Outlining the principles contained in the Declaration of Independence.

5.2. Identifying key battles of the American Revolution (e.g. Lexington and Concord, Bunker Hill, Saratoga, Cowpens, and Yorktown)

5.3. Describing the roles and contributions of Thomas Jefferson, Samuel Adams, Paul Revere, Patrick Henry, Thomas Paine, George Washington, and European support significant to the American cause

5.4. Discussing the contributions of ordinary citizens, including African Americans and women, to the American Revolution

5.5. Examining efforts to mobilize support for the American Revolution by the Minutemen, Committees of Correspondence, the First Continental Congress, Sons of Liberty, boycotts, and the Second Continental Congress

5.6. Tracking advantages and disadvantages of the British and Continental Armies

5.7. Cite reasons for colonial victory in the American Revolution

5.8. Summarizing the effect of the Treaty of Paris of 1783 on the development of the United States

6. The student will be able to recognize symbols, customs, and celebrations representative of the United States.

The student will demonstrate mastery by:

6.1. Defining symbols and customs

6.2. Identifying school, community, state and national symbols (e.g. United States flag, American eagle, etc.)

6.3. Identifying the pledge of allegiance and patriotic songs as expressions of patriotism

6.4. Explaining historically significant events that shaped America

7. The student will be able to describe the impact of significant historical figures and events.

The student will demonstrate mastery by:

7.1. Identifying historical figures that are used as symbols of American culture (e.g. currency, monuments, names of places, etc.)

7.2. Examining historical events that are significant to American culture (e.g. Fourth of July, Thanksgiving Day, Presidents Day, etc.)

5th Grade Catholic Identity Integration in Social Studies

Core Values of Classroom Behavior and Culture	Integration of Scripture and Church Teaching	Historic Church Figures and Events
<ul style="list-style-type: none">• The student will compare, contrast, and portray symbols and customs in Biblical times to American symbols and customs today.• The student will be able to begin to focus on and discern the influences, positive and negative, that effects of media.	<ul style="list-style-type: none">• The student will recognize that societal organization directly affects human dignity and the pursuit of life, liberty, and the pursuit of happiness• The student will understand that we are called by God to protect the planet and all of God's creation.• The student will discuss the meaning of peace as God's life within us.	<ul style="list-style-type: none">• The student will be able to make connections between holidays and significant religious and historical events.• The student will be able to list the gifts and the fruits of the Holy Spirit; list and explain the signs and symbols of Confirmation: connecting to identify symbols and customs.