



Diocese of Jackson Office of Education

4th Grade
Teacher Guide

The following are the specific standards and objects for fourth 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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4th Grade- Mathematics

Operations & Algebraic Thinking
<p>1. The student will be able to use the 4 operations with whole numbers to solve problems. Students will demonstrate mastery by:</p> <p>1.1. Interpreting a multiplication equation as a comparison (e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5) (Assessed on ACT Aspire Classroom Test 8)</p> <p>1.2. Representing verbal statements of multiplicative comparisons as multiplication equations</p> <p>1.3. Multiplying or dividing to solve word problems involving multiplicative comparison (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison) (Assessed on ACT Aspire Classroom Test 10)</p> <p>1.4. Solving multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted (Assessed on ACT Aspire Classroom Test 6)</p> <p>1.5. Representing these problems using equations with a letter standing for the unknown quantity</p> <p>1.6. Assessing the reasonableness of answers using mental computation and estimation strategies including rounding</p> <p>2. The student will be able to gain familiarity with factors and multiples. (Assessed on ACT Aspire Classroom Test 8) Students will demonstrate mastery by:</p> <p>2.1. Finding all factor pairs for a whole number in the range 1–100</p> <p>2.2. Recognizing that a whole number is a multiple of each of its factors</p> <p>2.3. Determining whether a given whole number in the range 1–100 is a multiple of a given one-digit number</p> <p>2.4. Determining whether a given whole number in the range 1–100 is prime or composite</p> <p>2.5. Solving problems involving prime numbers, factors, and multiples</p> <p>3. The student will be able to generate and analyze patterns. (Assessed on ACT Aspire Classroom Test 10) Students will demonstrate mastery by:</p> <p>3.1. Generating a number or shape pattern that follows a given rule</p> <p>3.2. Identifying apparent features of the pattern that were not explicit in the rule itself</p>
Numbers & Operations in Base Ten
<p>1. The students will be able to generalize place value understanding for multi-digit whole numbers up to 100,000,000. Students will demonstrate mastery by:</p>

- 1.1. Recognizing that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right (e.g., recognize that $700 \div 70 = 10$ by applying concepts of place value and division) (Assessed on ACT Aspire Classroom Test 9)
- 1.2. Reading and writing multi-digit whole numbers using base-ten numerals, number names, and expanded form (standard form, word form, and expanded form) (Assessed on ACT Aspire Classroom Test 9)
- 1.3. Comparing and ordering two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons (Assessed on ACT Aspire Classroom Test 9)
- 1.4. Using place value to round multi-digit whole numbers to any place up to 100,000,000 (Assessed on ACT Aspire Classroom Test 1)

2. The student will be able to use place value understanding and properties of operations to perform multi-digit arithmetic.

Students will demonstrate mastery by:

- 2.1. Fluently adding and subtracting (including subtracting across zeros) multi-digit whole numbers using the standard algorithm (Assessed on ACT Aspire Classroom Test 9)
- 2.2. Multiplying a whole number of up to four digits by a one-digit whole number, and multiplying two two-digit numbers, using strategies based on place value and the properties of operations (identity, commutative, associative, and distributive; illustrating and explaining the calculation by using equations, rectangular arrays, and/or area models) (Assessed on ACT Aspire Classroom Test 7)
- 2.3. Finding whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division; illustrating and explaining the calculation by using equations, rectangular arrays, and/or area models (Assessed on ACT Aspire Classroom Test 7)

3. The student will be about to estimate to check the result of a calculation.

Numbers & Operations with Fractions

1. The student will be able to extend understanding of fraction equivalence and ordering. (Assessed on ACT Aspire Classroom Tests 1 & 2)

Students will demonstrate mastery by:

- 1.1. Understanding that you cannot have a denominator of 0 because you cannot divide by 0
- 1.2. Recognizing and generating equivalent fractions by multiplying or dividing the numerator and denominator by the same number
- 1.3. Comparing two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$)
- 1.4. Recognizing that comparisons are valid only when the two fractions refer to the same whole

1.5. Recording the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions using a model

2. The student will be able to build Fractions from unit fractions by applying and extending previous understanding of operations of whole numbers.

(Assessed on ACT Aspire Classroom Tests 1 & 2)

Students will demonstrate mastery by:

2.1. Understanding addition and subtraction of fractions as joining and separating parts referring to the same whole

2.2. Decomposing a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation and justifying decompositions by using a fractional model

2.3. Adding and subtracting mixed numbers with like denominators

2.4. Solving word problems involving addition and subtraction of fractions referring to the same whole and having like denominators by using visual fraction models and equations to represent the problem

2.5. Applying and extending previous understandings of multiplication to multiply a fraction by a whole number

2.6. Understanding that a fraction a/b as a multiple of $1/b$

2.7. Using a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$

2.8. Understanding a multiple of a/b as a multiple of $1/b$ and using this understanding to multiply a fraction by a whole number (e.g. use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$ (In general, $n \times (a/b) = (n \times a)/b$.)

2.9. Solving word problems involving multiplication of a fraction by a whole number and using visual fraction models and equations to represent the problem

3. The student will be able to understand decimal notation for fractions and compare decimal fractions.

Students will demonstrate mastery by:

3.1. Expressing a fraction with denominator 10 as an equivalent fraction with denominator 100 and using this technique to add two fractions with respective denominators 10 and 100 (e.g. express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$)

3.2. Using decimal notation for fractions with denominators 10 or 100 (e.g. rewriting 0.62 as $62/100$; describing a length as 0.62 meters; locating 0.62 on a number line diagram)

3.3. Comparing two decimals to hundredths by reasoning about their size

3.4. Recognizing that comparisons are valid only when the two decimals refer to the same whole; recording the results of comparisons with the symbols $>$, $=$, or $<$, and justifying the conclusions

Measurement & Data

1. The student will be able to solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Students will demonstrate mastery by:

- 1.1. Knowing relative sizes of measurement units within one system of units (e.g. km, m, cm, mm; kg, g, mg; lb, oz.; l, ml; hr, min, sec.)
- 1.2. Expressing measurements in a larger unit in terms of a smaller unit within a single system of measurement
- 1.3. Recording measurement equivalents in a two-column table
- 1.4. Using the four operations to solve word problems involving intervals of time, money, distances, liquid volumes, masses of objects including problems that involve simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit (Assessed on ACT Aspire Classroom Tests 4 & 5)
- 1.5. Using diagrams such as number lines that feature a measurement scale represent measurement quantities
- 1.6. Applying the area and perimeter formula as for rectangles in real world and mathematical problems (Assessed on ACT Aspire Classroom Test 4)

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

Students will demonstrate mastery by:

- 2.1. Making a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$)
- 2.2. Solving problems involving addition and subtraction of fractions by using information presented in line plots (e.g. from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.)

3. The student will be able to understand concepts of angles and measure angles.

Students will demonstrate mastery by:

- 3.1. Recognizing angles as geometric shapes that are formed wherever two rays share a common endpoint and understanding concepts of angle measurement
- 3.2. Measuring angles in whole-number degrees using a protractor and sketching angles of specified measure
- 3.3. Recognizing angle measure as additive
- 3.4. Solving addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems by using an equation with a symbol for the unknown angle measure

4. The student will be able to select and use the appropriate tool to solve problems. (ruler, protractor)

Geometry

1. The student will be able to draw and identify lines and angles and classify shapes by their lines and angles.

Students will demonstrate mastery by:

- 1.1. Drawing points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular, intersecting and parallel lines (Assessed on ACT Aspire Classroom Test 3)
- 1.2. Identifying these in two-dimensional figure (Assessed on ACT Aspire Classroom Test 3)

- 1.3. Classifying two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size (Assessed on ACT Aspire Classroom Test 3)
- 1.4. Classifying and recognizing triangles according to their sides and angles (e.g., equilateral, isosceles, scalene and angles are acute, obtuse and right.)
- 1.5. Recognizing a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts.
- 1.6. Identifying line-symmetric figures and drawing lines of symmetry

Catholic Identity Integration in Mathematics 4th 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. Proverbs 11:1, 16:11- weights/ balance compared to life
Historic Church Figures and Events
<ol style="list-style-type: none"> 1. Francois Viete- 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. Rene Descartes (1596- 1650)- coordinate system 5. Antoine Lavoisier (1743- 1794)- metric system (kg) 6. Pythagorus 7. Archimedes (287 B.C.- 212 B.C.)- exponential notation

4th 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. Referring to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text (Assessed on ACT Aspire Classroom Tests 7 & 8)</p> <p>1.2. Determining a theme of a story, drama, or poem from details in the text (Assessed on ACT Aspire Classroom Tests 6 & 9)</p> <p>1.3. Summarizing a text (Assessed on ACT Aspire Classroom Tests 6 & 9)</p> <p>1.4. Describing in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions) (Assessed on ACT Aspire Classroom Tests 6 & 9)</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 in a text, including those that allude to significant characters found in mythology (e.g., Herculean) (Assessed on ACT Aspire Classroom Tests 7, 8, & 9)</p> <p>1.2. Explaining major differences between poems, drama, and prose, and referring to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text (Assessed on ACT Aspire Classroom Tests 3, 4, & 9)</p> <p>1.3. Comparing and contrasting the point of view from which different stories are narrated, including the difference between first-person and third-person narrations</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. Making connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text</p> <p>1.2. Comparing and contrasting the treatment of similar themes and topics and patterns of events in stories, myths, and traditional literature from different cultures</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>

1.1. reading and comprehending literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Reading-Informational Text

Key Ideas and Details (KID-I)
<p>1. The student will be able to read and comprehend non-fiction text. Students will demonstrate mastery of this standard by:</p> <ul style="list-style-type: none"> 1.1. Referring to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text (Assessed on ACT Aspire Classroom Test 10) 1.2. Determining the main idea of a text and explain how it is supported by key details (Assessed on ACT Aspire Classroom Tests 1 & 10) 1.3. Summarizing the text 1.4. Explaining events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text (Assessed on ACT Aspire Classroom Tests 1 & 2)
Craft and Structure (CS-I)
<p>1. The student will analyze the structure and purpose of information. Students will demonstrate mastery of this standard by:</p> <ul style="list-style-type: none"> 1.1. Determining the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area (Assessed on ACT Aspire Classroom Test 2) 1.2. Describing the overall structure of events, ideas, concepts, or information in a text or part of a text (e.g., chronology, comparison, cause/effect, problem/solution) 1.3. Comparing and contrasting a firsthand and secondhand account of the same event or topic; describing the differences in focus and the information provided
Integration of Knowledge and Ideas (IKI-I)
<p>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:</p> <ul style="list-style-type: none"> 1.1. Interpreting information presented visually, orally, or quantitatively and explaining how the information contributes to an understanding of the text in which it appears (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) 1.2. Explaining how an author uses reasons and evidence to support particular points in a text (Assessed on ACT Aspire Classroom Test 5) 1.3. Integrating information from two 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)
<p>1. The student will be able to read and comprehend grade appropriate text. Students will demonstrate mastery of this standard by:</p> <ul style="list-style-type: none"> 1.1. Reading and comprehending informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range

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 in 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 analytical expository texts. Students will demonstrate mastery of this standard by: 1.1. Examining a topic and conveying the topic clearly</p>
Production & Distribution of Writing (PDW)
<p>1. The student will be able to apply understanding of the purpose and focus of a writing piece. Students will demonstrate mastery of this standard by: 1.1. Planning a piece of writing by implementing a specific strategy (e.g., drawing, talking, using a map, jotting down notes)</p> <p>2. The student will be able to develop a topic effectively using various strategies to achieve logical organization. (Assessed on ACT Aspire Classroom Tests 1, 4, 5, 7, & 8) Students will demonstrate mastery of this standard by: 2.1. Sharing a piece of writing with an adult or peer for the purpose of receiving feedback about specific conventions (e.g., capitalization, punctuation, spelling) (Assessed on ACT Aspire Classroom Tests 2, 3, 4, & 6)</p> <p>3. The student will be able to compose grade-level expository text using prior knowledge, with information text when needed.</p>
Research to Build & Present Knowledge (RBPK)
<p>1. The student will be able to apply understanding of the purpose and focus of a writing piece. Students will demonstrate mastery of this standard by: 1.1. Recalling experiences from their past to be used as a source 1.2. Developing a topic effectively using various strategies to achieve logical organization</p> <p>2. The student will be able to integrate the information while avoiding plagiarism. Students will demonstrate mastery of this standard by: 2.1. Synthesizing newly gathered information with prior knowledge 2.2. Utilizing a note-taking technique to take meaningful notes about a topic</p>
Range of Writing
<p>1. The student will be able to write routinely over extended time frames (times for research and revision) and shorter time frames (a single sitting) for a range of discipline-specific tasks, purposes, and audiences. Students will demonstrate mastery of this standard by: 1.1. Developing an essay using research that connects real-world experiences and/or text to research 1.2. Developing an essay within a set time frame when given a prompt</p>

Speaking & Listening

Comprehension & Collaboration (CC)
<p>1. The student will be able to engage effectively in discussions. Students will demonstrate mastery of this standard by:</p> <p>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)</p> <p>2. The student will be able to engage and listen to a variety of media. Students will demonstrate mastery of this standard by:</p> <p>2.1. Determining main ideas and supporting details presented through various forms of media</p> <p>3. The student will be able to ask and answer appropriate questions. Students will demonstrate mastery of this standard by:</p> <p>3.1. Staying on topic through questioning and further elaborations during the discussion</p>
Presentation of Knowledge and Ideas
<p>1. The student will be able to report on a topic with appropriate facts. Students will demonstrate mastery of this standard by:</p> <p>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 in complete sentences</p>

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 or speaking. Students will demonstrate mastery of this standard by:</p> <p>1.1. Using relative pronouns (who, whose, whom, which, that) and relative adverbs (where, when, why) (Assessed on ACT Aspire Classroom Tests 3, 5, & 9)</p> <p>1.2. Forming and using the progressive verb tenses (e.g. I was walking; I will be walking)</p> <p>1.3. Using modal auxiliaries to convey various conditions (e.g. can, may, must) (Assessed on ACT Aspire Classroom Test 5)</p> <p>1.4. Ordering adjectives within sentences according to conventional patterns (e.g. a small red bag rather than a red small bag) (Assessed on ACT Aspire Classroom Test 3)</p> <p>1.5. Forming and using prepositional phrases (Assessed on ACT Aspire Classroom Tests 5, 9, & 10)</p> <p>1.6. Producing complete sentences, recognizing inappropriate fragments and run-ons (Assessed on ACT Aspire Classroom Tests 3, 5, 8, & 9)</p> <p>2. The student will be able to demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. Students will demonstrate mastery of this standard by:</p> <p>2.1. Using correct capitalization (Assessed on ACT Aspire Classroom Test 2)</p> <p>2.2. Using commas and quotation marks to mark direct speech and quotations from text (Assessed on ACT Aspire Classroom Test 2 & 10)</p> <p>2.3. Using a comma before a coordinating conjunction in a compound sentence (Assessed on ACT Aspire Classroom Tests 2 & 10)</p> <p>2.4. Spelling grade-appropriate words correctly, consulting references as needed (Assessed on ACT Aspire Classroom Test 2)</p>
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. Students will demonstrate mastery of this standard by:</p> <p>1.1. Choosing words or phrases to convey ideas precisely (Assessed on ACT Aspire Classroom Tests 1 & 7)</p> <p>1.2. Choosing punctuation for effect (Assessed on ACT Aspire Classroom Test 1)</p>
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. Students will demonstrate mastery of this standard by:</p> <p>1.1. Using context as a clue to the meaning of a word or phrase</p>

- 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

2. The student will be able to demonstrate understanding of figurative language, word relationships, and nuances in word meaning.

Students will demonstrate mastery of this standard by:

- 2.1. Recognizing and explaining the meaning of simple similes and metaphors in context
- 2.2. Recognizing and explaining the meaning of common idioms, adages, and proverbs
- 2.3. Demonstrating understanding of words by relating them to their antonyms and synonyms

Catholic Identity Integration in English Language Arts 4th Grade

Core Values of Classroom Behavior and Culture
<ol style="list-style-type: none">1. Students will treat one another and adults with respect.2. The student will be able to participate in discussion about blessings in their lives.
Integration of Scripture and Church Teaching
<ol style="list-style-type: none">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
<ol style="list-style-type: none">1. Students will read passages and texts written by historical Church authors, including Saints.

4th 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. Performing an interpolation using data in a simple table or graph
- 1.11. Performing an extrapolation using data in a simple table or graph
- 1.12. 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. Predicting the results of an additional trial or measurement in a moderately complex experiment

2.8. 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 simple 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.

Hierarchical Organization

1. Students will demonstrate an understanding of the organization, functions, and interconnections of the major human body systems.

Students will demonstrate mastery of this standard by:

- 1.1. Using technology or other resources to research and discover general system functions (e.g., machines, water cycle) as they relate to human organ systems and identify organs that work together to create organ systems
- 1.2. Obtaining and communicating data to describe patterns that indicate the nature of relationships between human organ systems, which interact with one another to control digestion, respiration, circulation, excretion, movement, coordination, and protection from infection
- 1.3. Constructing models of organ systems (e.g. circulatory, digestive, respiratory, muscular, skeletal, nervous) to demonstrate both the unique function of the system and how multiple organs and organ systems work together to accomplish more complex functions

- 1.4. Researching and communicating how noninfectious diseases (e.g. diabetes, heart disease) and infectious diseases (e.g. cold, flu) serve to disrupt the function of the body system
- 1.5. Using informational text, investigating how scientific fields, medical specialties, and research methods help us find new ways to maintain a healthy body and lifestyle (e.g. diet, exercise, vaccines, and mental health)

Reproduction & Heredity

1. Students will demonstrate an understanding of life cycles, including familiar plants and animals (e.g., reptiles, amphibians, or birds).

Students will demonstrate mastery of this standard by:

- 1.1. Comparing and contrasting life cycles of familiar plants and animals
- 1.2. Developing and using models to explain the unique and diverse life cycles of organisms other than humans (e.g., flowering plants, frogs, or butterflies) including commonalities (e.g., birth, growth, reproduction, or death)

Motions, Forces, & Energy

1. Students will demonstrate an understanding of the common sources and uses of heat and electric energy and the materials used to transfer heat and electricity.

Students will demonstrate mastery of this standard by:

- 1.1. Obtaining and communicating information to compare how different processes (including burning, friction, and electricity) serve as sources of heat energy
- 1.2. Planning and conducting scientific investigations to classify different materials as either an insulator or conductor of electricity
- 1.3. Developing models demonstrating how heat and electrical energy can be transformed into other forms of energy (e.g., motion, sound, heat, or light)
- 1.4. Developing models that demonstrate the path of an electric current in a complete, simple circuit (e.g., lighting a light bulb or making a sound)
- 1.5. Using informational text and technology resources to communicate technological breakthroughs made by historical figures in electricity (e.g. Alessandro Volta, Michael Faraday, Nicola Tesla, Thomas Edison, incandescent light bulbs, batteries, Light Emitting Diodes)
- 1.6. Designing a device that converts any form of energy from one form to another form (e.g. constructing a musical instrument that will convert vibrations to sound by controlling varying pitches, a solar oven that will convert energy from the sun to heat energy, or a simple circuit that can be used to complete a task)

1.7. Using the engineering design process to define the problem, design, construct, evaluate, and improve the device

2. Students will demonstrate an understanding of the properties of light as forms of energy.

Students will demonstrate mastery of this standard by:

2.1. Constructing scientific evidence to support the claim that white light is made up of different colors, including the work of Sir Isaac Newton to communicate results

2.2. Obtaining and communicating information to explain how the visibility of an object is related to light

2.3. Developing and using models to communicate how light travels and behaves when it strikes an object, including reflection, refraction, and absorption

2.4. Planning and conducting scientific investigations to explain how light behaves when it strikes transparent, translucent, and opaque materials

3. Students will demonstrate an understanding of the properties of sound as a form of energy.

Students will demonstrate mastery of this standard by:

3.1. Planning and conducting scientific investigations to test how different variables affect the properties of sound (i.e., pitch and volume)

3.2. In relation to how sound is perceived by humans, analyzing and interpreting data from observations and measurements to report how changes in vibration affect the pitch and volume of sound

3.3. Obtaining and communicating information about scientists who pioneered in the science of sound, (e.g., Alexander Graham Bell, Robert Boyle, Daniel Bernoulli, and Guglielmo Marconi)

Earth's Resources

1. Students will demonstrate an understanding of the various sources of energy used for human needs along with their effectiveness and possible impacts.

Students will demonstrate mastery of this standard by:

1.1. Organizing simple data sets to compare energy and pollution output of various traditional, non-renewable resources (e.g. coal, crude oil, wood)

1.2. Using technology or informational text to investigate, evaluate, and communicate various forms of clean energy generation

Earth's Systems & Cycles

1. Students will demonstrate an understanding of how the water cycle is propelled by the sun's energy.

Students will demonstrate mastery of this standard by:

1.1. Developing and using models to explain how the sun's energy drives the water cycle. (e.g., evaporation, condensation, precipitation, transpiration, runoff, and groundwater)

2. Students will demonstrate an understanding of weather and climate patterns.**Students will demonstrate mastery of this standard by:**

- 2.1. Analyzing and interpreting data (e.g., temperature, precipitation, wind speed/direction, relative humidity, or cloud types) to predict changes in weather over time
- 2.2. Constructing explanations about regional climate differences using maps and long-term data from various regions
- 2.3. Designing weather instruments utilized to measure weather conditions (e.g., barometer, hygrometer, rain gauge, anemometer, or wind vane)
- 2.4. Using the engineering design process to define the problem, design, construct, evaluate, and improve the weather instrument

3. Students will demonstrate an understanding of how natural processes and human activities affect the features of Earth's landforms and oceans.**Students will demonstrate mastery of this standard by:**

- 3.1. Analyzing and interpreting data to describe and predict how natural processes (e.g., weathering, erosion, deposition, earthquakes, tsunamis, hurricanes, or storms) affect Earth's surface
- 3.2. Developing and using models of natural processes to explain the effect of the movement of water on the ocean shore zone, including beaches, barrier islands, estuaries, and inlets (e.g., marshes, bays, lagoons, fjord, or sound)
- 3.3. Constructing scientific arguments from evidence to support claims that human activities, such as conservation efforts or pollution, affect the land, oceans, and atmosphere of Earth
- 3.4. Researching and explaining how systems (i.e., the atmosphere, geosphere, and/or hydrosphere), interact and support life in the biosphere
- 3.5. Obtaining and communicating information about severe weather phenomena (e.g., thunderstorms, hurricanes, or tornadoes) to explain steps humans can take to reduce the impact of severe weather events

Catholic Identity Integration in Science 4th Grade

Core Values of Classroom Behavior and Culture
<ol style="list-style-type: none">1. Students will make connections between energy transfers and our relationships with others (When we “collide with others are we spreading positive energy, like God’s message?)2. Students will treat one another and adults with respect, recognizing that we are all created by God in His image.
Integration of Scripture and Church Teaching
<ol style="list-style-type: none">1. Students will make the connection that the sacraments are outward signs, instituted by Christ, to give grace. They indicate the energy of God’s love and presence in our lives, just as light, sound, heat and motion indicate energy transfers.2. Students will recognize that just as energy moves through a wave, the movements of the Holy Spirit move through the Church and through us. They can be set in motion through reading the Scriptures, prayer, reflection, teachers and ministers of the Church, Mass, the sacraments, sacramentals, and each other.
Historic Church Figures and Events
<ol style="list-style-type: none">1. Students will study saints within the Church who were scientists or experts in the areas of science that they are studying.

4th Grade- Social Studies

Theme: Mississippi Studies & Regions

Civics**1. The student will be able to describe Mississippi's entry into statehood.****The student will demonstrate mastery by:**

- 1.1. Describing the process by which the Mississippi territory was acquired
- 1.2. Illustrating the steps taken to appropriate Mississippi's admission to the United States
- 1.3. Defining political and geographic reasons for change in location of Mississippi's state capitol
- 1.4. Examining the process of developing Mississippi's state government
- 1.5. Outline the structure of Mississippi government

2. The student will be able to identify people in positions of power and how they can influence people's rights and freedom.**The student will demonstrate mastery by:**

- 2.1. Examining the rights and freedoms guaranteed to citizens
- 2.2. Identifying elected leaders of the community and state
- 2.3. Construct a model of relationships between citizens and people in positions of political power

3. The student will be able to identify rights and responsibilities as a citizen of your community and state.**The student will demonstrate mastery by:**

- 3.1. Examining responsibilities as citizens (e.g. obeying rules and laws)
- 3.2. Discussing active citizenship and adults' responsibility to vote, to understand important issues, and to serve on a jury

Economics**1. The student will be able to describe Mississippi's economic and military role during the Civil War. Ex: Economic production of iron products, textiles, and ships, Military-provision of military supplies through ports.****The student will demonstrate mastery by:**

- 1.1. Naming military leaders from Mississippi during the Civil War
- 1.2. Tracing the development of slavery and opposition to slavery in Mississippi
- 1.3. Describing the events that led to the secession of Mississippi from the Union in 1861 and subsequently entering the Civil War
- 1.4. Determining roles of women on the home front and battle front during and after the Civil War

2. The student will be able to evaluate how geographic and economic factors influence life and work in Mississippi.

The student will demonstrate mastery by:

- 2.1. Comparing the abundance and scarcity of resources in a local region to other regions of Mississippi
- 2.2. Describing the division of labor within Mississippi (e.g. government, industry, and agriculture)
- 2.3. Defining opportunity cost
- 2.4. Describing the opportunity cost of choices made within Mississippi (e.g. cotton farming vs. soy bean farming, pasture land vs. industrial development, etc.)
- 2.5. Explaining the benefits and challenges of global trade for Mississippi
- 2.6. Explaining the connections between Mississippi and other states (e.g. economic and political borders, the Natchez Trace, the Mississippi River, the Gulf of Mexico, etc.)
- 2.7. Describing the economic impact of natural disasters

3. The student will be able to trace the economic impact of the Civil War and Reconstruction on Mississippi.

The student will demonstrate mastery by:

- 3.1. Defining the economic structure of Mississippi before and after the Civil War
- 3.2. Defining and evaluating the transportation infrastructure of Mississippi during the Civil War and Reconstruction period
- 3.3. Examining the use of sharecroppers as a response to the end of slavery

Civil Rights

1. The student will be able to analyze the Civil Rights Movement to determine the social, political, and economic impact of Mississippi.

The student will demonstrate mastery by:

- 1.1. Exploring the role of Jim Crow in disenfranchising African Americans
- 1.2. Naming important people of the modern Civil Rights Movement, including Martin Luther King, Jr., Rosa Parks, Medgar Evers, James Meredith, Fannie Lou Hamer, Charles Evers, etc.
- 1.3. Identifying and explaining events of the modern Civil Rights Movement, including the Brown decision of 1954, Jim Crow laws, the Freedom Riders (Goodman, Chaney, Schwerner), the Ole Miss Riots (James Meredith)
- 1.4. Describing the benefits of the Civil Rights Act of 1964, the Voting Rights Act of 1965, and the Brown v. Board of Education Supreme Court Case of 1954
- 1.5. Defining vocabulary associated with the modern Civil Rights Movement including discrimination, prejudice, segregation, integration, suffrage, and rights

2. The student will be able to examine how culture influences the way people modify and adapt to their environment.

The student will demonstrate mastery by:

- 2.1. Defining culture in Mississippi
- 2.2. Recognizing ways people celebrate their diverse cultural heritage (e.g. literature, language, games, songs, dances, holidays, etc.)
- 2.3. Analyzing ways people celebrate their diverse cultural heritage

Geography

1. The student will be able to describe the physical geography of Mississippi.

The student will demonstrate mastery by:

- 1.1. Identifying and mapping Mississippi's geographical regions
- 1.2. Comparing and contrasting the ten geographical regions of Mississippi in terms of soil, landforms, etc.
- 1.3. Illustrating major natural resources of Mississippi (e.g. agricultural, oil, rocks, minerals, etc.)

2. The student will be able to understand how geographic and environmental factors influence life and work.

The student will demonstrate mastery by:

- 2.1. Comparing the abundance and scarcity of resources in a local region to other regions of Mississippi (e.g. Delta's rich soil vs. coastal waters)
- 2.2. Describing the division of labor within Mississippi (e.g. government, industry, and agriculture)
- 2.3. Describing the opportunity cost of choices made within Mississippi (e.g. cotton farming vs. soy bean farming, pasture land vs. industrial development, beaches vs. casinos, landfills vs. parks, etc.)
- 2.4. Explaining the benefits and challenges of global trade for Mississippi
- 2.5. Explaining the economic and political connections between Mississippi and other states (e.g. borders such as the Natchez Trace, the Mississippi River, the Gulf of Mexico, etc.)
- 2.6. Describing the economic impact of natural disasters (e.g. hurricanes, tornadoes, earthquakes, etc.)

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

The student will demonstrate mastery by:

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

History

1. The student will be able to recognize symbols, customs, and celebrations representative of our community, Mississippi, and the United States.

The student will demonstrate mastery by:

- 1.1. Defining symbols and customs
- 1.2. Identifying school, community, state and national symbols (e.g. school mascot, community logo, Mississippi state flag, United States flag, American eagle, etc.)
- 1.3. Identifying the pledge of allegiance and patriotic songs as expressions of patriotism
- 1.4. Explaining historically significant events that shaped America

2. The student will be able to distinguish reasons for European exploration and settlement in Mississippi and the impact of European explorers on trade, health, and land expansion in Mississippi.

The student will demonstrate mastery by:

- 2.1. Mapping and labeling European settlements in early Mississippi, including Fort de Maurepas
- 2.2. Outlining the routes of early explorers to the New World on maps and a globe
- 2.3. Describe reasons for conflicts between Europeans and Native Americans in Mississippi, including differing beliefs regarding land ownership, religion, and culture

3. The student will be able to describe Antebellum times in Mississippi.

The student will demonstrate mastery by:

- 3.1. Exploring causes of the rise of Mississippi cotton culture
- 3.2. Linking cotton culture to the rise of slavery
- 3.3. Defining the activities of the Mississippi Antebellum Society

4. The student will be able to explain how literature, the arts, architecture, and music distinguish Mississippi from other places.

The student will demonstrate mastery by:

- 4.1. Identify Mississippians known for their artwork, music, architecture, and literature
- 4.2. Describe how literature, the arts, architecture, and music affect tourism within the state

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

The student will demonstrate mastery by:

- 5.1. Identify historical figures that are used as symbols of Mississippi culture (monuments, place names, etc.)
- 5.2. Examine historical events that are significant to Mississippi culture

6. The student will be able to compare and contrast the different Mississippi Native American cultures: Choctaw, Chickasaw, and Natchez

The student will demonstrate mastery by:

- 6.1. Identify the location of major tribes within Mississippi
- 6.2. Describe the reason for Native American removal in Mississippi and the impact of the removal of Native Americans
- 6.3. Examine how Native American tribes lived, including their homes, roles, beliefs, clothes, games, traditions, and food

4th 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 reflect the life of Christ by being respectful of all cultures and races. • The student will understand being a good, responsible citizen comes from having good character. • The student will be able to identify the importance of compromise and cooperation in maintaining peaceful relationships. • The student will recognize the rights and responsibilities of citizenship. • The student will respect the life and dignity of the human person. • The student will recognize the importance of peaceful relationships with 	<ul style="list-style-type: none"> • The student will express understanding of the rights, duties, and responsibilities to one another, to our families, and to the larger society. • The student will practice the concept of helping the poor and vulnerable as a basic teaching of the Gospel. • The student will understand right versus wrong and how we treat others when learning about the Civil Rights Movement. 	<ul style="list-style-type: none"> • The student will make connections between holidays and significant religious and historical events. • Comparing character traits of Biblical characters (Jesus, Moses, David, Solomon) with important people of the modern Civil Rights Movement, including Martin Luther King, Jr., Rosa Parks, Medgar Evers, James Meredith, Fannie Lou Hamer, Charles Evers, etc. • The student will find Biblical examples of vocabulary associated with the modern Civil Rights Movement including discrimination, prejudice, segregation, integration,

<p>others along with accepting differing opinions.</p>		<p>suffrage, and rights.</p> <ul style="list-style-type: none">• The student will compare and contrast the abundance and scarcity of resources in Jerusalem to regions of Mississippi (e.g. Delta's rich soil vs. coastal waters).• The student will identify symbols and customs.• The student will recognize that the Pledge of Allegiance states that our nation is "under God."• The student will understand how historic and religious significant events helped to shape America.
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