LUMEN CHRISTI
Catholic School

Seventh Grade Curriculum Guide

Patron Saint: Saint Elizabeth Ann Seton

Welcome To Seventh Grade!

Dear Parents,

We are pleased to provide you with the curriculum standards that your child will learn this year in seventh grade. These standards spell out exactly what skills and knowledge we expect your child to be able to do and understand by the end of this year. Lumen Christi follows rigorous content standards aligned with national guidelines and Archdiocesan standards. But even the most rigorous standards cannot make our students successful without the support of parents. Studies show that the family is critical to a child's success in school. Understanding what is expected of your seventh grade student enables you, the parent, to assess progress. The more you know about the academic expectations for children this age, the more influence you will have in educational progress. This booklet is designed to inform you of Lumen Christi's expectations for students in the five major curriculum areas: Religion, English Language Arts, Math, Social Studies, and Science. These expectations are aligned with the seventh grade curriculum that is used by the classroom teacher for daily instruction.

As a school dedicated to excellence we are continually reviewing, developing, and improving our curricular choices. Therefore, we will occasionally and purposefully make changes to our scope and sequence as we continue to grow and refine our practice of education.

This will be an exciting year of learning for your child. We are committed to partner with you to ensure your child achieves the highest level of academic success this year.

Blessings!

RELIGION

Creedal Church:

- Recognizes that faith is our response to God who gives Himself to us
- Recognizes Jesus Christ as the greatest of God's gifts to us
- Knows that God revealed Himself gradually in words and actions
- Knows the Church's description of the Trinity as God in three divine persons
- Describes the major traditions of our roots as Catholic Christians, e.g., marks of the Church, Church hierarchy, lay leadership, ecumenism
- Explains how "Catholic" means global, universal
- Knows the role of Mary, the apostles, saints and holy people in our faith traditions
- Identifies one's self as being a unique creation made in God's image
- Recognizes that we are called to cooperate freely with God's plan
- Knows that Mary remained free from sin her whole life from conception to death
- Knows that Christ is the heavenly high priest always interceding for us
- Knows that at the end of time we will rise with our glorified bodies
    - Uses stories from Scripture that describe the person and ministry of Jesus Christ: Baptism of Jesus (Matthew 3:13- 17); Jesus Calls the Fishermen (Mark I: 16-20, Matthew 9:9-13); the teachings of Jesus (Matthew 5-7, Matthew 25:31-46, John 3:16, John. 13-17); The Good Shepherd (John 10:1-10)
    - Recognizes major periods in the Bible and in the history of the Catholic Church
    - Explains the relationship between the Old and New Testament

Liturgy/Sacrament:

- Knows that liturgy is the work of Christ through his Church
- Names the sacraments of the Church and associates them with life experiences, e.g., family meals and Eucharist, forgiveness and Reconciliation, commitment Matrimony/Holy Orders/Confirmation
- Grows in understanding the many facets of the sacramental life of the Church
- Participates regularly in Sunday Eucharist
- Participates regularly in Sunday Eucharist
- Recognizes and understands the real presence of Christ in the Eucharist
- Participates in the Sacrament of Reconciliation
- Articulates the cycles of the Liturgical Year, including special feasts
- Identifies the ritual nature of life and associates it with the ritual of the Church, e.g., seasons of nature and the seasons of the Church Year
- Recognizes sacraments as effective signs of grace given by Christ and entrusted to the Church
    - Identifies sacramental actions in Scripture: Rebirth (John 3:1-18); Commitment (Acts 2:1-13); Ritual Meal (Matthew 26:20-29, Mark 4:17-25, Luke 22:14-20, 1 Corinthians 11:23-26, Mark 6:34-44); Forgiveness (John 20:22-23); Healing (James 5:13-15, Luke 5:17-25); Ministry (Matthew 28:18-20); Marriage (Genesis 2:21-25, Mark 10:6-9)

Moral Life:

- Describes experiences of conscience which signal what is right and wrong: a moral compass which guides us toward the Kingdom of God
- Identifies personal and moral choices as expressions of a Catholic moral life
- Associates social, economic and political choices with Christian morality
- Recognizes that some sins are collective and social-the wrongful acts of a group
- Integrates the skills of justice and peacemaking into actions
- Knows the value and the good acts of sacrifice, penance and self denial as part of Christian discipleship
    - Recognizes that the values of our Catholic faith are contrary to the message in some contemporary music and media
    - Names and describes the Ten Commandments, the Beatitudes and the Corporal and Spiritual Works of Mercy as guidelines for living a happy life and applies them to daily life (Matthew 5:3-12, Matthew 25:31-46, John 13:1-20)
    - Associates Jesus as a model of how we are to behave toward others (Luke 8:1-3, Luke 10:38-45, Matthew 19:13-15, John 13:12-16, John 13:34-35, John 15:8-10)
    - Connects Scripture to life issues: Rich Young Man (Matthew 19:16-24)
- Recognizes that God's plan calls us to refrain from sexual activity outside of marriage
- Recognizes that there are many sinful uses of sexuality in society
- Knows that substance abuse has many deadly effects on mind and body

- Practices the virtues of chastity, tolerance, understanding, prudence and self-acceptance
- Can define bullying and harassment and recognizes it when it occurs
- Knows how to use conflict management skills
- Can define and discuss the meaning of sexual harassment and sexual abuse

Christian Prayer

- Experiences a relationship with God in individual prayer, including meditation and spontaneous prayer
- Recognizes and experiences belonging to a community which prays with and for each other
- Recognizes that prayer is rooted in hope and is a “surge of the heart” toward God
- Knows that the Lord’s Prayer summarizes the Gospel and prays it often
- Prays the Jesus Prayer “Lord Jesus Christ, Son of God, have mercy on me a sinner”
- Grows in the knowledge of God’s loving Presence through retreat experiences
- Knows and prays all prayers memorized through the grade levels such as the Glory to the Father (Doxology), the Lord’s Prayer, Hail Mary, Apostles Creed, the Act of Contrition, the Rosary
- Uses Scripture as a source of prayer
- Recognizes and uses music as a form of prayer

ENGLISH LANGUAGE ARTS

READING: LITERATURE

Key Ideas and Details

- Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text.
- Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).

Craft and Structure

- Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of rhymes and other repetitions of sounds (e.g., alliteration) on a specific verse or stanza of a poem or section of a story or drama.
- Analyze how a drama's or poem's form or structure (e.g., soliloquy, sonnet) contributes to its meaning
- Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.

Integration of Knowledge and Ideas

- Compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles in a film).
- Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.

Range of Reading and Level of Text Complexity

- By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

READING:INFORMATIONAL TEXT

Key Ideas and Details:

- Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.
- Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).

Craft and Structure

- Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.
- Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.
- Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her position from that of others.

Integration of Knowledge and Ideas

- Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).
- Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.
- Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts.

Range of Reading and Level of Text Complexity

- By the end of the year, read and comprehend literary nonfiction in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range

WRITING

Text Types and Purposes

- Write arguments to support claims with clear reasons and relevant evidence.
- Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically.
- Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
- Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.
- Establish and maintain a formal style.
- Provide a concluding statement or section that follows from and supports the argument presented.
- Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
    - Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
    - Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
    - Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts.
    - Use precise language and domain-specific vocabulary to inform about or explain the topic.
    - Establish and maintain a formal style.
    - Provide a concluding statement or section that follows from and supports the information or explanation presented.
- Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
    - Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
    - Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.
    - Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.
    - Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.
    - Provide a conclusion that follows from and reflects on the narrated experiences or events.

Production and Distribution of Writing

- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.
- Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.

Research to Build and Present Knowledge

- Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
- Draw evidence from literary or informational texts to support analysis, reflection, and research.

Range of Writing

- Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

SPEAKING AND LISTENING

Comprehension and Collaboration

- Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
    - Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
    - Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.
    - Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
    - Acknowledge new information expressed by others and, when warranted, modify their own views.
- Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.
- Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.

Presentation of Knowledge and Ideas

- Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
- Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.
- Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

LANGUAGE

Conventions of Standard English

- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
    - Explain the function of phrases and clauses in general and their function in specific sentences.
    - Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas.
    - Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.*
- Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
    - Use a comma to separate coordinate adjectives (e.g., *It was a fascinating, enjoyable movie* but not *He wore an old[,] green shirt*).
    - Spell correctly.

Knowledge of Language

- Use knowledge of language and its conventions when writing, speaking, reading, or listening.
    - Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.*

Vocabulary Acquisition and Use

- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 7 reading and content*, choosing flexibly from a range of strategies.
    - Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
    - Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *belligerent, bellicose, rebel*).
    - Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
    - Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
- Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
    - Interpret figures of speech (e.g., literary, biblical, and mythological allusions) in context.

    - Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words.
    - Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *refined, respectful, polite, diplomatic, condescending*).
- Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

MATH

Ratios and Proportions

Analyze proportional relationships and use them to solve real-world and mathematical problems

- Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
- Recognize and represent proportional relationships between quantities.
    - Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
    - Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships
    - Represent proportional relationships by equations.
    - Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.
- Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

The Number System

Apply and extend previous understandings of operations with fractions.

- Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
    - Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged
    - Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
    - Understand subtraction of rational numbers as adding the additive inverse, p - q = p + (-q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
    - Apply properties of operations as strategies to add and subtract rational numbers
- Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
    - Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
    - Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then -(p/q) = (-p)/q = p/(-q). Interpret quotients of rational numbers by describing real-world contexts.
    - Apply properties of operations as strategies to multiply and divide rational numbers
    - Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
- Solve real-world and mathematical problems involving the four operations with rational numbers

Expressions and Equations

Use properties of operations to generate equivalent expressions

- Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

- Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically.
- Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
- Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities
    - Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
    - Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem

Geometry

Draw construct, and describe geometrical figures and describe the relationships between them.

- Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
- Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
- Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

- Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
- Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
- Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Statistics and Probability

Use random sampling to draw inferences about a population.

- Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population.
- Understand that random sampling tends to produce representative samples and support valid inferences.
- Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.
- Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.

Draw informal comparative inferences about two populations.

- Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
- Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

Investigate chance processes and develop, use, and evaluate probability models.

- Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
- Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
- Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to

observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
    - Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.
    - Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.
- Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation
    - Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
    - Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.
    - Design and use a simulation to generate frequencies for compound events.

ACCELERATED MATH

Ratios and Proportional Relationships

Analyze proportional relationships and use them to solve real-world and mathematical problems.

- Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
- Recognize and represent proportional relationships between quantities.
    - Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
    - Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
    - Represent proportional relationships by equations.
    - Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.
    - Use proportional relationships to solve multistep ratio and percent problems.

The Number System

Apply and extend previous understandings of operations with fractions.

- Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
- Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
- Solve real-world and mathematical problems involving the four operations with rational numbers.

Know that there are numbers that are not rational, and approximate them by rational numbers.

- Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
- Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2).

Expressions and Equations

Use properties of operations to generate equivalent expressions.

- Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

- Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically.
- Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
- Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
    - Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
    - Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *F*

Expressions and Equations Work with radicals and integer exponents.

- Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.
- Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
- Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.
- Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology

Understand the connections between proportional relationships, lines, and linear equations.

- Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
- Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.

Analyze and solve linear equations and pairs of simultaneous linear equations.

- Solve linear equations in one variable.
    - Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).
    - Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

Geometry

Draw construct, and describe geometrical figures and describe the relationships between them.

- Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
- Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
- Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

- Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
- Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
- Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Understand congruence and similarity using physical models, transparencies, or geometry software.

- Verify experimentally the properties of rotations, reflections, and translations:
    - Lines are taken to lines, and line segments to line segments of the same length.
    - Angles are taken to angles of the same measure.
    - Parallel lines are taken to parallel lines.
- Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that

exhibits the congruence between them.
- Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
- Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
- Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

Statistics and Probability

Use random sampling to draw inferences about a population.

- Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
- Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. Draw informal comparative inferences about two populations.
- Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
- Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

Investigate chance processes and develop, use, and evaluate probability models.

- Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
- Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
- Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
    - Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.
    - Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.
- Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
    - Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
    - Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.
    - Design and use a simulation to generate frequencies for compound events.

SOCIAL STUDIES

Grade 6, 7, and 8

Economics

Production/Consumption/Distribution:

- Describe how personal economic decisions impact global economy (e.g., starting new business initiatives, boycotts, and earning power of workers)
- Analyze the impact of personal decisions on global issues (e.g., trade agreements, recycling, and conserving the environment)
- Determine the location of natural resources and explain how they generate trade and economic patterns
- Describe effects of investments in infrastructure (e.g., education, healthcare, public safety, transportation, etc.) on the economy
- Identify and explain various points of view concerning economic issues (e.g., taxation, unemployment, inflation, the national debt, and distribution of income)
- Compare the standard of living in various societies

Exchange:

- Interpret and explain the development of money in history
- Differentiate among the various economic & political systems (e.g., feudalism, capitalism, communism, etc.)
- Distinguish and explain basic economic concepts (e.g., supply and demand; production, exchange, and consumption; labor, wages, and capital; inflation and deflation; public and private goods and services; market economy and command economy)
- Identify the economic roles of institutions (e.g., corporations and businesses, banks, labor unions, and the Federal Reserve System)

History

Time:

- Interpret the past using a variety of primary and secondary sources
- Compare ancient and present-day communities around the World
- Analyze the cause and effect relationship of different events over time

People:

- Identify and describe significant people in the major eras in the United States and World History
- Examine the impact of immigration on the United States and World History
- Summarize major issues associated with the history, culture, and tribal sovereignty of the indigenous peoples of Americas
- Research the political values of freedom, democracy, equality, & justice as embodied in important documents (e.g. the Magna Carta, Declaration of Independence, U.S. Constitution, and the Bill of Rights)
- Organize and analyze information to place people in historical perspective

Events:

- Analyze significant events and the major eras of the United States and the World
- Describe the relationship between and among significant events in the United States and World History
- Critically analyze current events in the United States and the World
- Explain the interpretation of historical events according to various viewpoints
- Identify major scientific discoveries and technological innovations and describe their social and economic effects on society
- Explain the need for laws and policies to regulate science and technology

Geography

Location:

- Identify past & present countries is the World
- Explain relative and absolute location of places using appropriate geographical terminology
- Locate and identify physical features in the World

Map Skills:

- Use maps, charts, and graphs to display and compare information
- Use an atlas to estimate distance, calculate scale, identify dominant patterns of climate and land use, and compute population density
- Construct mental maps of selected locales, regions, states, and countries and draw maps from memory, representing relative location, direction size, and shape
- Create different types of maps (e.g., political, physical, and thematic)

Regions:

- Identify past & present World regions
- Identify United State regions throughout history

Place:

- Identify components of culture (e.g., religion, art, language, customs, and cuisine)
- Understand the different characteristics of climate, landforms, bodies of water, cities, governments, and other characteristics of place

Human Environment Interaction:

- Describe and analyze ways in which people interact with, modify and adapt with the environment
- Research the causes and consequences of global issues (e.g., urbanization, extinction of species, consumption of natural resources, and World events)
- Identify changing boundaries and major land acquisitions of the United States

Movement:

- Explain the movement of people, ideas, products, and diseases in the World
- Evaluate the impact of science and technology on the United States and the World

Political Science

Citizenship:

- Demonstrate ways in which a citizen may participate in public policy debates Identify individual responsibilities to local, state, national and global communities Explain the role and impact of civil actions
- Locate, organize, and use relevant information to understand issues

Laws:

- Explain how laws are developed, changed, and enforced
- Analyze and discuss important political documents (e.g., the Magna Carta, Constitution, Bill of Rights, and landmark decisions of the Supreme Court)

Government:

- Explain the role of political parties and interest groups in American politics
- Identify and explain the different forms of government, including the basic principles of democracy
- Explain how legislative, executive, and judicial powers are separated and balanced at the federal level
- Describe and explain how the federal system separates the powers of federal, state, and local government
- Distinguish how the powers of government are acquired, maintained, justified, and sometimes abused
- Describe the role and effects of international organizations and political alliances throughout the World
- Analyze how various groups of people and cultures govern themselves

Behavioral Science

Individual:

- Describe and explain how various factors influence individual identity

Institution:

- Describe cooperation and interdependence among groups, societies, and nations
- Demonstrate knowledge of the World's religions

Society:

- Compare and contrast the components of various region’s culture

- Explain impact of World events globally
- Describe the reflection of cultural values and ideas in art and architecture
- Describe cultural contributions of racial and ethnics groups in the United States and the World
- Identify examples of bias and stereotyping and how they contribute to conflict
- Analyze cultural conflicts in Unites States History
- Give examples of media influence on behavior and decision-making of individuals and groups

Catholic Social Teachings

Life and Dignity of the Human Person:
- Analyzes social issues based on whether human dignity is valued or harmed
- Identifies elements of human dignity based on Catholic Social Teaching
- Acts to transform human dignity
- Uses conflict resolution skills
- Identifies abuses of human dignity found in American Society
- Identifies Biblical passages related to human dignity

The Call to Family, Community, and Participation:
- Models responsible behavior to family and community through service
- Is involved in service projects beyond the local community
- Uses the church's social teachings as a lens to look at the moral and human dimensions of public issues

The Rights and Responsibilities of the Human Person:
- Articulates the component parts of human dignity
- Identifies actions that would be considered abuses of human rights (local, national, international)
- Practices peaceful conflict resolution strategies within the family, school, and community
- Researches social data and church teaching as a way to begin to transform injustice

Option for the Poor and the Vulnerable:
- Shares personal resources to help the poor and vulnerable
- Can discuss laws and policies that can benefit the poor and vulnerable members of society
- Practices behaviors that help others
- Can articulate the causes of poverty and the systems which prevent people from overcoming poverty
- Does research on the 20th and the 21st century people who have fought for justice, e.g. Archbishop Romero, Dorothy Day, Martin Luther King
- Clearly articulates the difference between justice and charity

Dignity of Work and the Rights of Workers:
- Can discuss the role work can play as a contribution to self and society
- Can articulate the importance of intrinsic values
- Demonstrates putting forth the best effort in school, recreation, and work
- Demonstrates respect for the basic rights and responsibilities at school and neighborhood
- Gives examples of the basic rights and responsibilities of workers in at least three different job areas

Solidarity of the Human Family:
- Models attitudes and behaviors that accept and value differences (racial, ethnic, economic, etc.)
- Displays an awareness of responsibility to others throughout the world
- Demonstrates the policies, and behaviors that support a peaceful world

Care for God's Creation:
- Displays individual and group actions to protect and preserve the environment
- Takes an active role in programs and laws that support and help all forms of life

SCIENCE

Earth Science

Weather:

- Investigate how the greenhouse effect leads to global warming
- Explain how the tilt of the earth determines seasons and length of day

Space:

- Understand how the force of gravity keeps the planets and other bodies in orbit
- State Newton's Laws of Gravitation
- Explain orbital motion of objects in the solar system
- Understand that stars give off light and produce energy by nuclear fusion
- Realize that light years and astronomical units are used to measure distance in space
- Understand how humans use technology to explore space
- Know what characteristics of a planet support life
- Know that billions of galaxies exist in the universe

Physical Science

Sound and Light:

- Demonstrate that light travels in straight lines unless reflected or refracted
- Identify visible light as one component of the electromagnetic spectrum
- Demonstrate that light interacts with matter by transmission, absorption, or reflection
- Demonstrate that light can be reflected with mirrors or refracted with lenses
- Explain how the Sun is the major source of energy for the Earth
- Demonstrate that light is essential for vision
- Demonstrate how things that absorb light often transmit heat
- Observe and demonstrate that sound is affected by the matter through which it travels
- Describe how sound travels in waves
- Explain that sound waves have wavelength, frequency, and amplitude
- Demonstrate how the ear is a receptor for sound

Matter:

- Model how all matter is composed of atoms, consisting of protons, neutrons, and electrons
- Realize that particles of matter are in constant motion, and when heated, the motion of the molecules increases and they move farther apart
- Know the materials that contain equal numbers of positive and negative charges are electrically neutral
- Know that electromagnetic forces exist with and between atoms

Forces, Motion, and Energy:

- Explain how gravitational force is applied
- Describe and investigate the properties of light, heat, gravity, magnetic fields, electrical fields and sound waves and their interactions with common objects

Electricity and Magnetism:

- Explain that electric currents can produce magnetic forces and magnets can produce electric currents
- Explain the relationship between magnetic forces and electric forces
- Identify the role of electromagnetic forces in electric motors, generators, radio, television, and other technologies
- Observe that different materials act as insulators and conductors of electrical current

Life Science

Animals:

- Cycles
    - Know that sexual reproduction results in the continuation of the species

Human Body:

- Explain that a human being has interactive systems

- Know that humans carry on basic life processes
- Describe how disease is caused by internal and external factors
- Understand homeostasis
- Describe the stages of development of a growing embryo and fetus

Cells, Heredity and Classification:

- Realize that both heredity and the environment contribute to the development of living things
- Identify the levels of organization in living things: cells, tissues, organs, systems, and organisms
- Know the structure and function of the different parts of a cell
- Describe how chromosomes are contained in both egg and sperm and carry instructions for the new individual
- Know the chemical and structural properties of DNA and its role in specifying the characteristics of an organism within an organism

Standards and information obtained from:

- Archdiocese of Milwaukee Office of Schools
- National Benchmarks and Standards for College and Career Readiness
- Department of Defence Education Activity