



ARCHDIOCESE
of MILWAUKEE

CURRICULUM
Guide
FOR PARENTS

GRADE 8

To obtain additional information, please contact:

OFFICE FOR SCHOOLS

3501 South Lake Drive • P.O. Box 070912 • Milwaukee, WI 53207

Phone: (414)-758-2256 • Website: www.archmil.org

Before you get started...

What is a Curriculum Guide?

Academic excellence is a hallmark of Catholic schools in the Archdiocese of Milwaukee. To assist schools in maintaining academic excellence, the archdiocese's Office for Schools has developed curriculum guides for grades 4K-8th that identify what we want our students to know and be able to do at the end of each grade based on national, state, and local standards. With these guides as a template, each individual school develops a plan to clearly articulate what is taught, how it is taught, and how student achievement is assessed for each grade. This process of "fine tuning" results in a school specific standards-based curriculum that guides teaching and learning.

Characteristics of a 8th Grader

- Continues to develop autonomy within the context of being in a family structure
- Needs a certain degree of privacy
- Experiences changes during puberty that may cause worry about his/her developing body
- Grows in recognition of his/her uniqueness as he/she experiences affirming and positive relationships with persons of both genders
- Experiences highs and lows in friendships
- Uses music, movies, TV, and video games as pastimes
- Uses sports, musical instruments, and drama as creative outlets for developing talents
- Experiences internet, email, and writing on the computer as everyday highlights
- Needs discussion, reflection, and prayer to organize the experiences and information gathered in life



CREED

- Recognizes major portions of the New Testament in the history of the Catholic Church
- Describes and relates modern examples of the marks of the Church (one, holy, catholic, and apostolic)
- Describes the origins and current state of other Christian traditions and the role of ecumenism and inter-religious dialogue in Christian life
- Describes the Paschal Mystery and redemption from sin
- Participates in a dialogue between faith and science as a template of the relationship between reason and faith
- Describes a path to holiness as lived by people from multiple faith traditions

LITURGY AND SACRAMENTS

- Conducts a personal examination of conscience
- Identifies, reflects, and describes the personal and communal importance of sacramental actions in Scripture

MORAL LIFE

- Describes experiences of how external factors can form the conscience and signal what is right and wrong, as well as how to behave
- Organizes activities that demonstrate how a Christian ought to respond to social, economic, and political situations
- Articulates and can provide positive and negative examples of the principles of Catholic Social Teaching
- Designs, executes, and provides substantial reflection on a service project that addresses a need in the community

CHRISTIAN PRAYER

- Prays and develops prayers, blessing God for all he has bestowed
- Creates, composes, and articulates spontaneous prayer to deepen one's relationship with God
- Prays and analyzes the Nicene Creed
- Prays Scriptures of the day and can navigate Scripture and resources related to Scriptural prayer

FAMILY

- Recognizes that affirmation and communication are essential to human life, and are found in strong families
- Understands that the family is the basic cell of society, the Domestic Church

FRIENDSHIPS AND RELATIONSHIPS

- Understands that responsible dating helps friendships, and must be built on mutual trust
- Evaluates own relationships in an effort to stay healthy, respectful, kind, and Christ-like in interactions with others

HUMAN SEXUALITY

- Understands human sexuality is primarily concerned with our capacity to love and form relationships by being male or female
- Recognizes a person's gender is constitutive of his or her nature and spirituality
- Evaluates relationships, and practices chastity
- Makes judgments about relationships in light of understanding that chastity directs our sexuality and sexual desire toward authentic love and away from using persons as objects for sexual pleasure

MARRIAGE

- Understands that developing one's own unique gifts as fully as possible contributes to a healthy marriage
- Evaluates relationships, and how they are ordered toward the good of marriage and family

MORAL DECISION MAKING

- Understands that God has given us the natural desire for happiness
- Evaluates how within informed conscience and free will, we can choose to follow the right path to happiness
- Understands that growing in one's relationship with God, through prayer, helps one to know God's will and make right decisions

RESPECT FOR LIFE

- Knows that violence begins with a lack of respect for life
- Understands each person has a fundamental dignity because everyone has been created in the image and likeness of God
- Demonstrates a consistent respect for life

VIRTUES

- Is introduced to, can give examples of, and practices Chastity, Modesty, Tolerance, Understanding, Temperance, Prudence, and Self-acceptance

English Language Arts

READING: LITERATURE

- Cites the textual evidence that most strongly supports an analysis of what the text says explicitly, as well as inferences drawn from the text
- Determines a theme or central idea of a text and analyzes its development over the course of the text, including its relationship to the characters, setting, and plot; provides an objective summary of the text
- Analyzes how particular lines of dialogue or incidents in a story or drama propel the action, reveals aspects of a character, or provokes a decision
- Determines the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyzes the impact of specific word choices on meaning and tone, including analogies or allusions to other texts
- Compares and contrasts the structure of two or more texts and analyzes how the differing structure of each text contributes to its meaning and style

READING: INFORMATIONAL TEXT

- Cites the textual evidence that most strongly supports an analysis of what the text says explicitly, as well as inferences drawn from the text
- Determines a central idea of a text and analyzes its development over the course of the text, including its relationship to supporting ideas; provides an objective summary of the text
- Analyzes how a text makes connections among and distinctions between individuals, ideas, or events
- Determines the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyzes the impact of specific word choices on meaning and tone, including analogies or allusions to other texts
- Delineates and evaluates the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognizes when irrelevant evidence is introduced
- Analyzes a case in which two or more texts provide conflicting information on the same topic and identifies where the texts disagree on matters of fact or interpretation

WRITING

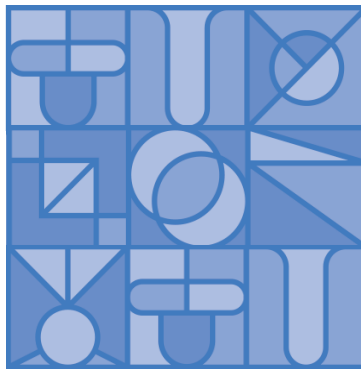
- Writes arguments to support claims with clear reasons and relevant evidence
- Writes informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content
- Writes narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences
- Gathers relevant information from multiple print and digital sources, using search terms effectively; assesses the credibility and accuracy of each source; quotes or paraphrases; following a standard format for citation and avoiding plagiarism
- Draws evidence from literary or informational texts to support analysis, reflection, and research

SPEAKING AND LISTENING

- Engages effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others' ideas and expressing their own clearly
- Analyzes the purpose of information presented in diverse media and formats and evaluates the motives behind its presentation
- Delineates a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced
- Presents claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; uses appropriate eye contact, adequate volume, and clear pronunciation

LANGUAGE

- Demonstrates command of the conventions of standard English grammar and usage when writing or speaking
- Demonstrates command of the conventions of standard English capitalization, punctuation, and spelling when writing
- Uses knowledge of language and its conventions when writing, speaking, reading, or listening
- Determines or clarifies the meaning of unknown and multiple-meaning words and phrases
- Demonstrates understanding of figurative language, word relationships, and nuances in word meanings



In 8th grade, your child will learn a number of skills and ideas that he or she must know and understand to be ready for college and career. Your child will continue to learn how to write and reason with algebraic expressions. Your child also will make a thorough study of linear equations with one and two variables. Building on previous work with relationships between quantities, your child will be introduced to the idea of a mathematical function. And your child will prepare for high school geometry by understanding congruence (same shape and size) and similarity of geometric figures.

HELP YOUR CHILD LEARN AT HOME

Ask your child to share with you any work he or she is doing in math class that strikes him or her as interesting. Some possibilities might include:

- Solving interesting problems involving cylinders and spheres, such as figuring out how much water fits inside a garden hose, or how many earths would fit inside the sun.
- Analyzing data with a scatter-plot, for example to decide whether exercise and obesity are related.
- Solving “just for fun” algebra puzzles, such as: “I’m thinking of two numbers. The difference between the numbers is 40. Twice the smaller number is 20 more than the larger number. What are my numbers?”

FUNCTIONS

- Interprets equations in slope-intercept form
- Creates functions to model linear relationships
- Uses functions to describe relationships between two quantities

THE NUMBER SYSTEM

- Uses rational approximations of irrational numbers

EXPRESSIONS AND EQUATIONS

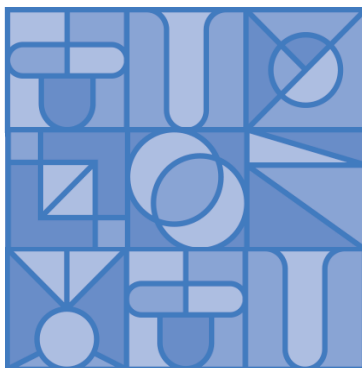
- Uses and evaluates square roots and cube roots
- Performs operations with numbers expressed in scientific notation
- Graphs proportional relationships
- Analyzes and solves pairs of simultaneous linear equations

GEOMETRY

- Describes the effect of dilations, translations, rotations, and reflections
- Justifies facts about angle relationships
- Applies the Pythagorean Theorem to determine unknown side lengths
- Applies the Pythagorean Theorem to find distances
- Solves problems using the formulas for the volumes of cones, cylinders, and spheres

STATISTICS AND PROBABILITY

- Constructs and interprets scatter plots
- Uses the equation of a linear model to solve problems



Social Studies

- Examines how our background and environment affect how we think, feel, and act.
- Investigates and interprets interactions between individuals and groups.
- Assesses the role that human behavior and cultures play in the development of social endeavors.
- Uses economic reasoning to understand issues.
- Analyzes how decisions are made and interactions occur among individuals, households, and firms/businesses.
- Analyzes how an economy functions as a whole.
- Uses geographic tools and ways of thinking to analyze the world.
- Analyzes human movement and population patterns.
- Examines the impacts of global interconnections and relationships.
- Uses historical evidence for determining cause and effect.
- Analyzes, recognizes, and evaluates patterns of continuity and change over time in the context of historical events.
- Connects past events, people, and ideas to the present; uses different perspectives to draw conclusions; and suggests current implications.
- Evaluates a variety of primary and secondary sources to interpret the historical context, intended audience, purpose, and/or author's point of view.
- Identifies and analyzes democratic principles and ideals.
- Analyzes and evaluates the powers and processes of political and civic institutions.

CATHOLIC SOCIAL TEACHINGS

Solidarity - "We are one human family whatever our national, racial, ethnic, economic, and ideological differences."

Call to Family, Community, and Participation - "The person is not only sacred but also social."

Option for the Poor and Vulnerable - "A basic moral test is how our most vulnerable members are faring."

Care for God's Creation - We show our respect for the Creator by our stewardship of creation."

The Dignity of Work and the Rights of Workers - "The economy must serve people, not the other way around."

Dear Parents:

A strong foundation in science, technology, engineering, and mathematics is essential for preparing our students to be well informed citizens as well as prepared for college and the work force. Our traditional science programs have focused on content, facts, and vocabulary, but have lacked the ability for students to engage in the actual application of scientific concepts. The Next Generation Science Standards (NGSS) have refocused K-12 science education to focus on the big ideas through an emphasis on firsthand experiences such as investigation, design, and modeling, to help make more meaningful connections to the concepts that will stay with our children for a lifetime.

The NGSS promote a new way of teaching and learning that allows students to experience science in a meaningful way. This is accomplished by integrating three dimensions of learning as well as technology and engineering principles:

- **Core Disciplinary Concepts:** This is the content that is being covered (ex. Biology).
- **Science and Engineering Practices:** This focuses on the process of how science is conducted in the real world, such as through planning and carrying out investigations.
- **Cross Cutting Concepts:** These are science ideas, like *cause and effect*, that permeate all the sciences.

Your child/children will experience instruction in the classroom that emphasizes scientific exploration and experimentation. Children will be engaged in questioning, exploring and discussing possible solutions, investigating science concepts, using argumentation, and being fully active in the learning process. This approach mirrors real-world science practices and engages students in a more meaningful way. Not only will our students be immersed in investigative experiences, but they will also be developing important critical-thinking skills that will cultivate the great thinkers and innovators of tomorrow.

PHYSICAL SCIENCE

- Develop the historical perspective of the atomic and molecular theory
- Describe organization of the Periodic Table including how each element is represented
- Differentiate how all matter is composed of atoms, consisting of protons, neutrons, and electrons
- Model how molecules form based on the patterns in the periodic table
- Compare and contrast covalent and ionic bonds
- Summarize the accomplishments of a contributing scientist in physical science
- Observe, describe, and identify changes in properties based on chemical reactions
- Trace the life cycle of a product made of synthetic materials beginning with the natural resources
- Evaluate the sustainability of a product through its life cycle

- Compare and contrast the characteristics of particles in a solid, liquid, and a gas
- Distinguish between the common use and application of the term heat
- Demonstrate how particle behavior changes as thermal energy is added or removed
- Recognize how a gain or loss of thermal energy causes a physical change in state
- Investigate fluid pressure in terms of speed and temperature
- Illustrate that atoms are conserved in physical and chemical processes
- Compare and contrast basic chemical reactions
- Conduct an experiment and collect data to support the law of conservation of thermal energy
- Articulate Newton's First, Second, and Third Law of Motion and provide examples of each
- Design a solution to a problem to demonstrate the varying responses of two colliding objects
- Investigate the motion of objects and collect and analyze to explain changes in motion in terms of unbalanced forces
- Describe how magnetic field strength changes with distance
- Develop a testable question and design an experiment to determine factors that can influence the strength of electromagnetic forces
- Collect data related to strength of interactions, distance from the sun, or orbital periods of objects in the solar system
- Construct and defend argument on gravitational forces using data collected
- Design an experiment using a magnet or a compass to demonstrate magnetic fields
- Apply an understanding of magnetic fields in an experiment to magnetic fields in outer space
- Conduct an experiment and display collected data to show the relationship between mass, energy, and speed
- Describe the different types of potential energy
- Develop a model to explain the relationship between
 - Distance and gravitational potential energy, for example a roller coaster at varying position on a hill or objects at varying heights on shelves
 - Distance and magnetic potential energy, for example changing the direction/orientation of a magnet
 - Distance and electrical potential energy, for example a balloon with static electric charge brought closer to a classmate's hair
- Design and test a device that supports a prediction of the insulating properties of materials
- Plan an investigation that compares initial and final temperatures of an isolated variable:
 - Same mass of different materials
 - Different masses of the same material
 - Same mass of same material in different environments
- Recognize that energy is not lost, but changes forms
- Develop an explanation of how kinetic energy is transferred based on an experiment in which objects move
- Trace the changes in forms and types of energy in a closed system, for example a swinging pendulum, spring, rubber band, or bow and arrow
- Explain that waves have wavelength, frequency, and amplitude

- Differentiate between three types of waves
- Observe and demonstrate that sound is affected by the matter through which it travels
- Describe how sound travels in waves
- Demonstrate how the ear is a receptor for sound
- Identify visible light as one component of the electromagnetic spectrum
- Model how light interacts with matter by transmission, absorption or reflection
- Investigate the reflection of light with mirrors and refraction of light with lenses
- Identify the differences between analog and digital signals
- Provide evidence to explain why a digital device is more reliable than an analog device

LIFE SCIENCE

- Distinguish differences between single-celled and multicellular organisms
- Provide evidence that living things are made of cells
- Summarize the accomplishments of a contributing scientist in Life Science
- Describe the structure and function of different parts of a cell
- Demonstrate how parts of the cell work together to provide energy for life processes
- Compare and contrast a variety of body structures/systems within organisms and their role for survival
- Show the relationship between the levels of organization in living things: cells, tissues, organs, systems
- Describe the interdependence of a human's interactive systems
- Recognize an organism's behaviors/physical adaptations
- Compare and contrast different behaviors and adaptations between species in different environments
- Analyze the impact of changing one environmental condition on population growth
- Analyze the impact of one genetic factor on survival
- Represent the chemical process of photosynthesis
- Represent the relationship between photosynthesis and respiration
- Demonstrate how different types of neurons work together to transmit information to and from the brain/spinal cord
- Recognize interactions between living and nonliving things in an environment
- Recognize the competition of limited resources among organisms in an environment and analyze the effects on growth and reproduction
- Identify and classify symbiotic relationships
- Describe the eight biomes in terms of their distinct biotic and abiotic characteristics
- Compare and contrast the pattern of interactions between organisms in varying environments
- Describe how plants are producers
- Discover that plants influence other life processes
- Create a model to demonstrate food web interactions in a particular ecosystem
- Demonstrate energy transfer within a food web utilizing the energy pyramid

- Trace the cycling of atoms between living and nonliving parts of an ecosystem
- Understand that through the process of succession, communities change over time
- Infer changes in populations based on physical or biological components
- Utilize a graph to analyze population change data
- Analyze water purification, nutrient recycling, soil erosion to maintain biodiversity and the health of a natural system
- Compare the benefits and deficits of design solutions for maintaining biodiversity
- Identify the parts of a chromosome within the nucleus of a cell
- Identify the chemical and structural properties of DNA and its role in specifying the characteristics of an organism within an organism
- Describe how chromosomes are contained in both egg and sperm and carry instruction for the new individual
- Demonstrate how genes can be affected by mutations
- Create a pedigree chart
- Describe how DNA makes proteins
- Understand that sexual and asexual reproduction are necessary for the continuation to the species
- Describe the stages of the cell cycle
- Describe the stages of meiosis
- Model and compute how an inherited trait is determined by one or more genes using a Punnett Square
- Research types of genetic diseases and create a pedigree to explain the pattern of inheritance
- Describe the process of genetic engineering and its effects on our society, remembering that God is the Author of all life and has a grand design for creation
- Diagram sedimentary layers to indicate relative age of fossils
- Calculate absolute age of a fossil using radioactive half-life formula/chart
- Compare species within a range on the geological timeline
- Compare and contrast skeletal systems of modern species, as well as compare/contrast modern to ancient
- Construct a model to demonstrate relatedness
- Describe the stages of development of a growing embryo and fetus
- Identify patterns of similar characteristics
- Simulate or create a visual to demonstrate the process of natural selection
- Create data table and/or graph to convey data of predator/prey within an environment
- Project how current trends in human resource use and population growth will influence the natural environment, and show how current policies affect those trends
- Recognize how organisms evolve, remembering that God is the Author of all life
- Know the history of the Theory of Evolution
- Explain how some of the changes on the earth are contributing to changes in the balance of life and affecting the survival or population growth of certain species

EARTH SCIENCE

- Explain the orbital motion of objects in the solar system
- Describe how the tilt of the earth determines seasons and length of day
- Draw a diagram or make a model to explain solar and lunar eclipses
- Summarize the accomplishments of a contributing scientist in Earth Science
- Understand how humans use technology to explore space
- Know that billions of galaxies exist in the universe
- Understand how the force of gravity keeps the planets and other bodies in orbit
- Describe Newton's Law of Gravitation
- Develop a scale model to represent space distances
- Explain how telescopes are used to make observations and collect data about the solar system and the universe
- Analyze data collected from various types of telescopes and spacecraft
- Compare and contrast characteristics of each planet
- Evaluate the ability of a space object to support life
- Construct a model to show Earth is comprised of layers including a core, mantle, lithosphere, hydrosphere and atmosphere
- Demonstrate the movement of energy throughout the system of Earth's layers
- Describe the formation of soil including texture, fertility and resistance to erosion
- Compare and contrast the interrelationships involved in the process of the rock cycle
- Explain how successive layers of sedimentary rock are affected by folding, breaking and uplifting layers
- Identify and evaluate the impact of local geologic processes
- Identify and evaluate the impact of major geologic events
- Compare and contrast how water, wind, and ice cause weathering and erosion on Earth's surface
- Construct an argument to show that the fossils contained in the successive layers of rock can be used to confirm the age, history and changing life forms of the earth
- Distinguish between landforms that are created through constructive and destructive forces
- Design a model to demonstrate that Earth's crust is divided into plates that move in response to mantle movement
- Demonstrate via model/diagram that the sun's energy drives the water cycle and that the water cycle is a continuous process of recycling
- Create an illustration to show the composition and structure of the Earth's atmosphere
- Explain how heat, moisture and air movement determine weather
- Utilize data from weather instrumentation
- Demonstrate wind flow from high pressure areas to low pressure areas; global atmospheric movement influences local weather
- Diagram how local lakes affect local weather
- Analyze how temperature, pressure and the Coriolis Effect cause wind and water currents
- Examine how geographic features affect climate

- Use maps to explain regional climates
- Use historical temperature data to investigate factors that influence climate and weather patterns and seasonal changes
- Identify warm and cold currents on a continental/world map
- Create essential research questions related to the distribution of natural resources
- Develop an argument based on evidence to show how human activity is impacting the quality and quantity of natural resources
- Explain standards and safety procedures used regarding natural disasters
- Describe technologies used to predict, monitor and minimize the effects of natural hazards
- Compare and contrast the effects of environmental changes on living things
- Evaluate the impact of global development/expansion on earth structures
- Develop/Design a solution to a local environmental issue
- Identify one natural resource that is impacted by an increase in human population
- Outline the arguments using evidence to illustrate the human impact on natural resources
- Analyze tables, graphs, or maps of global regional temperatures and atmospheric levels of gases to generate questions and possible solutions to reduce the impact of global climate change

SCIENCE AND ENGINEERING PRACTICES

- Ask questions and define problems
- Develop and use models (examples can be physical, conceptual, or graphical)
- Plan and carry out investigations
- Analyze and interpret data
- Use mathematics and computational thinking
- Construct explanations (for science) and design solutions (for engineering)
- Engage in an argument based on evidence
- Obtain, evaluate, and communicate information

CATHOLIC SOCIAL TEACHINGS

- Work collaboratively and respect the ideas, roles, and abilities of others
- Students will be able to demonstrate stewardship inspired by Catholic values in the care of local and global environments
- Identify the relationships between the roles of science, technology, and Catholic ethics in the global community
- Understand and appreciate that many different people of varied cultures have made contributions that benefit both science and society
- Relate heredity and reproduction to Catholic teachings
- Discuss the theory of evolution in the context of Catholic teaching about the origin of life
- Compare/describe life from the fossil record with modern life forms and discuss Biblical implications

World Language

- **INTERPERSONAL COMMUNICATION:** Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions
- **INTERPRETIVE COMMUNICATION:** Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics
- **RELATING CULTURAL PRACTICES TO PERSPECTIVES:** Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied
- **RELATING CULTURAL PRODUCTS TO PERSPECTIVES:** Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures

Art

- **CREATING:** Demonstrates willingness to experiment, innovate, and take risks to pursue ideas, forms, and meanings that emerge in the process of art-making or designing
- **CREATING:** Selects, organizes, and designs images and words to make visually clear and compelling presentations
- **CREATING:** Applies relevant criteria to examine, reflect on, and plan revisions for a work of art or design in progress
- **PRESENTING:** Collaboratively prepares and presents selected theme-based artwork for display, and formulates exhibition narratives for the viewer
- **RESPONDING:** Interprets art by analyzing how the interaction of subject matter, characteristics of form and structure, use of media, art-making approaches, and relevant contextual information contributes to understanding messages or ideas and mood conveyed
- **CONNECTING:** Makes art collaboratively to reflect on and reinforce positive aspects of group identity

Physical Education

- Demonstrates competency in a variety of skills and movement patterns
- Applies knowledge of strategies, principles, tactics, and concepts related to movement and performance
- Demonstrates the skills and knowledge to achieve and maintain a health-enhancing level of physical activity and fitness

Music

- CREATING: Evaluate their own work by selecting and applying criteria including appropriate application of compositional techniques, style, form, and use of sound sources
- PERFORMING: Perform the music with technical accuracy, stylistic expression, and culturally authentic practices in music to convey the creator's intent
- RESPONDING: Apply appropriate personally-developed criteria to evaluate musical works or performances
- CONNECTING: Demonstrate understanding of the relationship between music and the other arts or subject areas, including musical and extra-musical considerations
- CONNECTING: Exhibit understanding of the two-way relationship between music and people of various cultures, ethnicities, locales, and eras through an exploration of musical and extra-musical components

