



Tomah Area School District
High Quality Student Learning
Every Child. Every Day.

Essential Learning

Grade/Course: Grade 8 ELA

Essential Knowledge:

Cite textual evidence that strongly supports an analysis of what the text says explicitly/implicitly and make logical inferences.

Summarize texts, from a variety of genres, to determine one or more themes or central ideas and analyze their development over the course of the text.

In literary texts, analyze how particular lines of dialogue or events propel the action, reveal aspects of a character, or provoke a decision. (RL) In informational texts, analyze how individuals, events, and ideas are introduced, related to each other, and developed. (RI)

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on topics, texts, and issues, building on others' ideas and expressing one's thinking clearly.

- a. Come to discussions prepared, and explicitly draw on that preparation by referring to evidence on the topic, text, or issue. Support analysis by making connections, paraphrasing, clarifying, or explaining the evidence.
- b. Set and track specific norms and goals for collegial discussions (e.g., gaining attention in respectful ways, actively listening, speaking one at a time about the topics and texts under discussion), and monitor progress toward goals.
- c. Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas. Promote multiple perspectives.
- d. Evaluate new information expressed by others and, when warranted, qualify or justify one's own views in light of the evidence presented.

Understand and evaluate 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.

Demonstrate an understanding of how language functions in different cultures, contexts, and disciplines; apply this knowledge to comprehend more fully when reading and listening, and make effective choices when composing, creating, and speaking.

- a. Recognize that standardized English is only one dialect of many and has a specific history that is implicated in power relationships.
- b. Determine the language demands of a writing/speaking situation; respond in appropriate ways (e.g., precise and concise language; extended and descriptive language; incorporation of code-meshing, etc.).
- c. Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).
- d. Begin to develop metacognitive awareness as writers and speakers by explaining the reasons for language choices.

Determine or clarify the meaning of unknown and multiple-meaning words or phrases in grade-level reading and content; use context clues, analyze meaningful word parts, consult general and specialized reference materials, and apply word solving strategies (for meaning) as appropriate.

- a. 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).
- b. Use grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word.

Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

- a. Determine the denotative, connotative, and figurative meanings of words and phrases used in texts; when words have similar denotations, be able to describe differences in connotation and their impact on meaning and tone.
- b. Analyze the impact of specific word choice on meaning and tone, including analogies or allusions to other texts.

Create writing that utilizes:

- a. Organization: provide an introduction that creates suspense and anticipation for the reader. Structure of the text supports and clarifies the purpose and topic throughout the entire text. Conclusion statement provides closure and ties up all loose ends.
- b. Transitions: varied transitions to create cohesion and clarity among ideas and concepts.
- c. Word Choice (including domain specific): use genre-specific vocabulary. Use vocabulary that enhances the meaning and engages the reader.

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.

Essential Questions:

1. What do good readers do?
2. Am I clear about what I just read? How do I know?
3. Author's choice: Why does it matter?
4. What makes a story a "great" story?
5. In what ways does creative choice impact an audience?
6. Whose story is it, and why does it matter?
7. Am I clear about what I just read?
8. How do I know that I am clear about what I just read?
9. What makes collaboration meaningful?
10. Making meaning from a variety of sources: What will help?
11. What makes a presentation "great"?
12. "What I say" versus "how I say it", does it really matter?
13. How does situation affect meaning?
14. How does author's choice impact an audience?
15. When a word doesn't make sense, what can I do?
16. How do I use what I know to figure out what I don't know?



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Essential Learning

Grade/Course: Grade 8 Math

Essential Knowledge:

Understanding irrational numbers and comparing them to 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).

Using linear equations, linear functions and systems of linear equations to explain relationships between two variables connecting graphs, tables, and equations

- Analyze and solve pairs of simultaneous linear equations.
 - Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
 - Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.
 - Solve real-world and mathematical problems leading to two linear equations in two variables.

Define, interpret, and compare functions

- Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
- Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
- Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
- Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

Work with radicals and integer exponents

- Know and apply the properties of integer exponents to generate equivalent numerical expressions.
- 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.

Determine if shapes are identical by rotating them, flipping them, and moving them around on a graph

- 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.

Apply the Pythagorean Theorem to find unknown lengths in right triangles and explaining why it works

- Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

Know and apply the formulas of volume of three-dimensional shapes, including cones, spheres, and cylinders.

- Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Essential Questions:

1. How can algebraic expressions and equations be used to model, analyze, and solve mathematical situations?
2. In what ways can rational numbers be useful?
3. How are functions useful?
4. How does geometry better describe objects?
5. How is probability used to make informed decisions about uncertain events?

Units:

1. Expressions and Equations (Exponents) and the Numbers System
2. Functions
3. Expressions and Equations
4. Geometry
5. Statistics and Probability





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Essential Learning

Grade/Course: Grade 8 Science

Essential Knowledge:

Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses.

Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of the object.

Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.

Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Develop and use a model to develop why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.

Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.

Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Essential Questions:

1. What is scientific inquiry?
2. What are some ways to describe motion?
3. How do forces change the motion of objects?
4. How does energy cause change?
5. How does sound and light waves travel and interact with matter?
6. How can thermal energy be used?
7. What physical changes and energy changes occur as matter goes from one state to another?
8. What are atoms, and what are they made of?
9. How do elements join together to form chemical compounds?
10. What happens to atoms and energy during a chemical reaction?
11. What are solutions, and how are they described?
12. What kinds of objects are in the solar system?
13. What makes up the universe, and how does gravity affect the universe?
14. How are minerals and rocks formed, identified, classified and used?
15. What causes earthquakes and volcanic eruptions?
16. What evidence do scientists use to determine the ages of rocks?
17. What have scientists learned about Earth's past by studying rocks and fossils?
18. How do human activities impact the environment?
19. How do human body systems interact and support life?
20. How do species adapt to new environments over time?

Units:

1. Motion and Energy
2. Interactions of Matter
3. Understanding the Universe
4. Earth and Geologic Changes
5. Exploring Ecology
6. Heredity and Human Body Systems





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Essential Learning

Grade/Course: Grade 8 Social Studies

Essential Knowledge:

Students will investigate and interpret interactions between individuals and groups (Sociology). Learning about the relationship of people and groups.

- Summarize the role culture plays in personal and group behavior.
- Categorize factors that contribute to cooperation and conflict among peoples of a country and/or the world (i.e., culture, language, religion, political beliefs).

Students will evaluate government decisions and their impact on individuals, businesses, markets, and resources (Role of Government). Learning about the economic systems and allocation of resources.

- Compare and contrast how different economic systems (traditional, command, market, mixed) choose to allocate the production, distribution, and consumption of resources (what, how, for whom is it produced).

Students will use geographic tools and ways of thinking to analyze the world. Learning the tools of Geography.

- Use paper and digital maps to ask and answer geographic questions (e.g., Where are there patterns? Why there? So what?).
- Analyze how various map projections distort shape, area, distance, and direction (e.g., Mercator, Robinson, Peters).

Students will use geographic tools and ways of thinking to analyze the world. Learning spatial thinking (map interpretation), mental mapping and maps from memory

- Interpret patterns in a variety of maps, charts, and graphs to display geographic information (contour, cartogram, population, natural resource, historical maps) and explain relationships among them.
- Construct a mental map of regions and locate the major regions of the world and their physical and cultural features including continents, cities, countries, bodies of water, landforms, mountain ranges, and climate zones.
- Compare mental maps shaped by individual perceptions of people, places, regions, and environments.

Students will evaluate the relationship between humans and the environment. Learning human environment interaction and interdependence.

- Analyze how technology interacts with the environment and how increased use of technology affects the burden and use of natural resources.
- Analyze how distribution of natural resources such as fisheries and crops (renewable and nonrenewable) creates systems of commerce between groups.
- Analyze how unequal distribution of resources creates inequities between regions and can lead to conflict between competing countries.

Students will communicate and critique conclusions. Learning to communicate conclusions and to critique conclusions.

- Communicate conclusions using a variety of media (i.e. video or online, documentaries, exhibits, research papers, or web pages).
- Analyze and evaluate the logic, relevance, and accuracy of others' claims, taking into consideration potential bias.

Students will be civically engaged. Learning about civic engagement.

- Explore opportunities for personal or collaborative civic engagement with community, school, state, tribal, national, and/or global implications.





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Essential Learning

Grade/Course: Grade 8 Band

Essential Knowledge:

Students will analyze, develop, and convey meaning through the presentation of artistic work.

- Rehearse and demonstrate the ability to sing and/or play expressively, on pitch, and in rhythm, while using proper technique and maintaining a steady beat.
- Perform using expressive qualities and techniques
- Discuss own ideas and feedback of others to develop strategies to address technical challenges
- Illustrate how the setting and music elements contribute to the context of the music.
- Demonstrate an understanding of music from aural traditions and through standard and nonstandard notation through performance.
- Perform collaboratively as a part of an ensemble, demonstrating well developed ensemble skills.
- Demonstrate proper concert etiquette collaboratively in a rehearsal for a variety of musical settings.
- Express musical ideas through verbal, movement, written, artistic, or technological means.
- Demonstrate proper concert/audience etiquette for a variety of musical settings
- Reflect upon and critique performances using grade appropriate music vocabulary.

Essential Questions:

Woodwinds and Brass:

1. How do I play the E flat Concert Scale?
2. How do I play the F Concert Scale?
3. How do I play the A flat Concert Scale?
4. How do I play the C Concert Scale?
5. How do I play the G Concert Scale?
6. How do I play the D flat Concert Scale?
7. How do I play a Two Octave Chromatic Scale?
8. How do I play in 6/8 time?
9. How do I play with different types of articulations?
10. How can I play scales in different patterns?
11. How do I perform with appropriate tone quality?
12. How do I develop my intermediate expressive concepts?

Percussion:

1. How do I build my mallet technique?
2. How do I play the timpani?
3. How do I change pitch on the timpani?
4. How do I read notes in bass clef?
5. How do I tune a timpani?
6. How do I play the timpani with proper technique?

Units:

1. Marching Band
2. 1st Quarter Lessons
3. 2nd Quarter Lessons
4. 3rd Quarter Lessons
5. 4th Quarter Lessons
6. Winter Concert
7. Band-O-Rama
8. Spring Concert





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Essential Learning

Grade/Course: Grade 8 Introduction to Wildlife, Natural Resources & Forestry

Essential Knowledge:

Students will explain interrelationships between natural resources and humans necessary to conduct management activities in natural environments.

- Apply knowledge of natural resource components to the management of natural resource systems.
- Classify natural resources.

Students will apply scientific principles to natural resource management activities.

- Use cartographic skills to aid in developing, implementing and evaluating natural resource management plans, measure and survey for natural resource status in developing related plans with interpretation of laws related to natural resource management and protection.
- Apply ecological concepts and principles to natural resource systems.
- Demonstrate natural resource enhancement techniques.
- Apply ecological concepts and principles to natural resource systems.

Students will apply knowledge of natural resources to production and processing industries.

- Produce, harvest, process and use natural resource products.

Students will demonstrate techniques used to protect natural resources.

- Manage fires in natural resource systems.
- Diagnose plant and wildlife diseases and follow protocol to prevent their spread while acquiring management protocol of insect infestations of natural resources.

Students will identify and apply employability skills.

- Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
- Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.
- Identify and exhibit traits for retaining employment.
- Develop positive relationships with others.

Students will use economic principles to establish and manage an AFNR enterprise.

- Apply principles of capitalism in the business environment.
- Apply principles of entrepreneurship in businesses.

Essential Questions:

1. What is wildlife?
2. What connections are found within an ecosystem?
3. What are the basic components of a habitat?
4. What determines where an organism is placed within a food chain?
5. How do food webs affect the environment around them?
6. What qualifies as the best habitat?
7. How do natural resources and environmental systems compare?
8. How are natural resources classified?
9. What is a prairie?

10. What are the characteristics of a prairie ecosystem?
11. What are wetlands and how are they classified?
12. What are the types of forests in the United States?
13. What is the importance of forests?
14. How can we determine the age and historical events of a tree?
15. Which natural resource systems career is best for me?
16. What could be my SAE?

Units:

1. Wildlife
2. Natural Resources
3. Forestry
4. Natural Resources & Environmental Service Careers
5. Supervised Agricultural Experience





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Essential Learning

Grade/Course: Grade 8 DNR Certifications

Essential Knowledge:

Students will operate environmental service systems to manage a facility environment.

- Use pollution control measures to maintain a safe facility environment.
- Manage safe disposal of all categories of solid waste.
- Apply the principles of public drinking water treatment operations to ensure safe water at a facility.
- Apply principles of wastewater treatment to manage wastewater disposal in keeping with rules and regulations.

Students will examine the relationship between energy sources and environmental service system with a basic understanding of the use of tools, equipment, machinery and technology to accomplish tasks in environmental service systems.

- Compare and contrast the impact of conventional and alternative energy sources on the environment.
- Use technological and mathematical tools to map land, facilities and infrastructure with inclusion of basic maintenance knowledge related to tools, equipment and machinery in safe working order for tasks in environmental service systems.

Students will explain interrelationships between natural resources and humans necessary to conduct management activities in natural environments.

- Apply knowledge of natural resource components to the management of natural resource systems.
- Classify natural resources.

Students will apply scientific principles to natural resource management activities.

- Use cartographic skills to aid in developing, implementing and evaluating natural resource management plans, measure and survey for natural resource status in developing related plans with interpretation of laws related to natural resource management and protection.
- Apply ecological concepts and principles to natural resource systems.
- Demonstrate natural resource enhancement techniques.
- Apply ecological concepts and principles to natural resource systems.

Students will apply knowledge of natural resources to production and processing industries.

- Produce, harvest, process and use natural resource products.

Students will identify and apply employability skills.

- Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
- Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.
- Identify and exhibit traits for retaining employment.
- Develop positive relationships with others.

Students will use economic principles to establish and manage an AFNR enterprise.

- Apply principles of capitalism in the business environment.
- Apply principles of entrepreneurship in businesses.

Essential Questions:

1. What are the names and function of the main boat parts?
2. What are the characteristics of various types of boats?
3. What safety features does an ATV have?
4. What steps are included in an ATV pre-ride inspection?
5. What should be considered when launching a boat?
6. What common signals are used when operating a boat?
7. What safety precautions should be taken when operating a boat?
8. What laws should be followed when operating a boat?
9. What are the names and function of the main ATV/UTV parts?
10. What safety features does an ATV have?
11. What protective gear should an ATV/UTV rider wear?
12. What are the four types of driving positions used when operating an ATV?
13. What steps are included in an ATV pre-ride inspection?
14. What is the BONEC procedure?
15. What are the correct procedures for turn and stopping an ATV?
16. What laws should be followed when operating an ATV/UTV?
17. What are the names and function of the main snowmobile parts?
18. What safety features does a snowmobile have?
19. What protective gear should a snowmobile rider wear?
20. What are the four types of driving positions used when operating a snowmobile?
21. What steps are included in a snowmobile pre-ride inspection?
22. What are the correct procedures for turn and stopping a snowmobile?
23. What laws should be followed when operating a snowmobile?

Units:

1. Boaters Safety
2. ATV Safety
3. Snowmobile Safety
4. Natural Resource & Environmental Service System Careers
5. Supervised Agricultural Experience





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Essential Learning

Grade/Course: Grade 8 Introduction to Horticulture

Essential Knowledge:

Students will apply knowledge of plant classification, anatomy and physiology to the production and management of plants.

- Classify agricultural plants according to taxonomy systems.
- Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.
- Apply energy conversion to plant systems.
- Apply knowledge of plant physiology to plant systems.

Students will propagate, culture and harvest plants.

- Demonstrate plant propagation techniques.
- Develop and implement a plant management plan for crop production.
- Develop and implement a plan for integrated pest management.
- Apply principles and practices of sustainable agriculture to plant production.
- Harvest, handle and store crops.

Students will employ elements of design to enhance an environment.

- Create designs using plants.

Students will recognize different systems in which plants grow.

- Investigate various means to grow plants.

Students will identify and apply employability skills.

- Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
- Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.
- Identify and exhibit traits for retaining employment.
- Develop positive relationships with others.

Students will use economic principles to establish and manage an AFNR enterprise.

- Apply principles of capitalism in the business environment.
- Apply principles of entrepreneurship in businesses.

Essential Questions:

1. What are the various segments of plant science?
2. What are some important types of plants and what are their uses?
3. What makes a successful experiment?
4. What is plant classification?
5. What are the functions of a stem?
6. What are the two main parts of a leaf?
7. What are the two main parts of a flower?
8. What is the process of photosynthesis?

9. How should a landscaping project be designed?
10. What characteristics differentiate types of leaves from one another?
11. I can identify the two main types of stems and describe their differences.
12. What characteristics differentiate types of flowers from one another?
13. What characteristics help identify specific leaf and stem types?
14. Which plant systems career is best for me?
15. What could be my SAE?

Units:

1. Plant Science
2. Plant Classification
3. Plant Anatomy & Physiology
4. Landscape Design
5. Plant ID
6. Plant Science Careers





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Essential Learning

Grade/Course: Grade 8 Introduction to Small Animals

Essential Knowledge:

Students will examine the components, historical development, global implications and future trends of the animal system industry.

- Evaluate the development and implications of animal origin, domestication and distribution.

Students will classify, evaluate, select and manage animals based on anatomical and physiological characteristics.

- Classify animals according to hierarchical taxonomy and agricultural use.
- Apply principles of comparative anatomy and physiology to uses within various animal systems.
- Select animals for specific purposes and maximum performance based on anatomy and physiology.

Students will prepare and implement animal handling procedures for the safety of animals, producers and consumer of animal products.

- Demonstrate safe animal handling and management techniques.
- Implement procedures to ensure that animal products are safe.

Students will identify and apply employability skills.

- Identify and demonstrate positive work behaviors and personal qualities needed to be employable.
- Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.
- Identify and exhibit traits for retaining employment.
- Develop positive relationships with others.

Students will use economic principles to establish and manage an AFNR enterprise.

- Apply principles of capitalism in the business environment.
- Apply principles of entrepreneurship in businesses.

Essential Questions:

1. What is the scope and economic impact of the companion animal industry?
2. What are the benefits of companion animals for humans?
3. How were companion animals domesticated?
4. What are the external parts, and what is the physiology of a cat?
5. What characteristics make cat breeds distinctive from one another?
6. What are the characteristics of a dog?
7. What are the groups and breeds of dogs?
8. What should my pet's diet look like?
9. Which animal systems career is best for me?
10. What could be my SAE?

Units:

1. Companion Animals
2. Cats
3. Dogs
4. Pet Care

5. Animal Science Careers
6. Supervised Agricultural Experience





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Essential Learning

Grade/Course: Grade 8 Exercise and Sports Science (ESS)

Essential Knowledge:

Standard 1

- Throw with a mature pattern for distance or power appropriate to the activity during small-sided game play, including world/cultural games.
- Catch using an implement in a small-sided game play.
- Foot-dribbles or dribbles with an implement with control, changing speed and direction and during small-sided game play.
- Execute an underhand serve for distance and accuracy for net and wall games.
- Strike with a mature overhand pattern in modified net/wall games.
- Strike an object with an implement for power to open space in a variety of small-sided game play.
- Two-hand volley with control in a small-sided game.

Standard 2

- Execute during at least one small-sided game the following offensive tactics to create open space: moves to create open space on and off the ball; stay spread on offense; use a variety of passes, fakes, and pathways; give and go.
- Reduce open space on defense by staying on the goal side of the offensive player and reducing the distance to him/her (third-party perspective).

Standard 3

- Compare and contrast health-related fitness and skill-related fitness components.
- Apply the overload principle (FITT formula) in preparing a personal workout.

Standard 4

- Independently implement safety protocols associated with physical activity, exercise, dance, and outdoor environments with the teacher's guidance.
- Accept responsibility for contributing to and enhancing the physical activity environment.
- Accept responsibility for contributing to and enhancing the physical activity environment.

Standard 5

- Discuss how enjoyment could be increased in self-selected physical activities.
- Identify opportunities for social support in a self-selected physical activity or dance.

Units:

1. Football
2. Soccer
3. Fitness
4. Net games
5. Weight training
6. Floorball
7. Basketball
8. Volleyball

- 9. LaCrosse
- 10. Yard games
- 11. Games of low organization





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Essential Learning

Grade/Course: Grades 6, 7 & 8 Health

Essential Knowledge:

Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.

- Examine how external and internal factors can influence health behaviors.
- Provide examples of how factors can interact to influence health behaviors.
- Examine how one's family, culture, and peers influence one's personal health behaviors.
- Examine how media and technology influence one's own personal health behaviors.
- Examine how one's values and beliefs influences one's own personal health behaviors.

Students will demonstrate the ability to access valid information and products and services to enhance health.

- Describe situations that require accurate health information.
- Locate sources of valid health information from home, school, and community.
- Describe criteria for evaluating resources.

Students will demonstrate the ability to use decision-making skills to enhance health.

- Determine when individual or collaborative decision making is appropriate.
- Demonstrate decision making in health-related situations.
- Predict the impact of each decision on self and others.
- Analyze the outcome of a health-related decision.

Essential Questions:

1. How does my family medical history affect my health?
2. How does my family culture affect my health?
3. How do my peers affect my health?
4. How do media messages affect my health?
5. How does the use of technology affect my health?
6. How do I access valid health information?
7. How do I identify whether the health information is accurate or credible?
8. How do I identify situations where effective decision-making skills are implemented?
9. How do I assess the impact of a decision-making process on health related situations?

Units:

6th Grade:

Mental Health

- Parts of health – Mental/Emotional, Physical, Social.
- Influences on health
- G.R.E.A.T. Program - decision making model

Nutrition

- How the foods I eat affect my health
- What foods I eat compared to the foods I should eat
- How the decisions I make in food choices affect my health

Fitness

- What exercise does for my overall health
- Why is exercise important for my mental, physical, and social health
- How the decision I make about exercising affects my overall health

Human Growth and Development

- How communications skills with others can affect my health
- How the media and what I see and hear affects my health

7th Grade:

Mental Health

- The affect mental health has on my overall health
- Research on mental health diseases/disorders
- Presentation of the disease and disorders

Drugs

- Basic knowledge of drugs
- How media affects my use of drugs
- Research on specific drugs to share with the class

First -Aid

- How the decisions I make in emergency situations can affect myself or others
- What are my responsibilities when confronted with an emergency situation

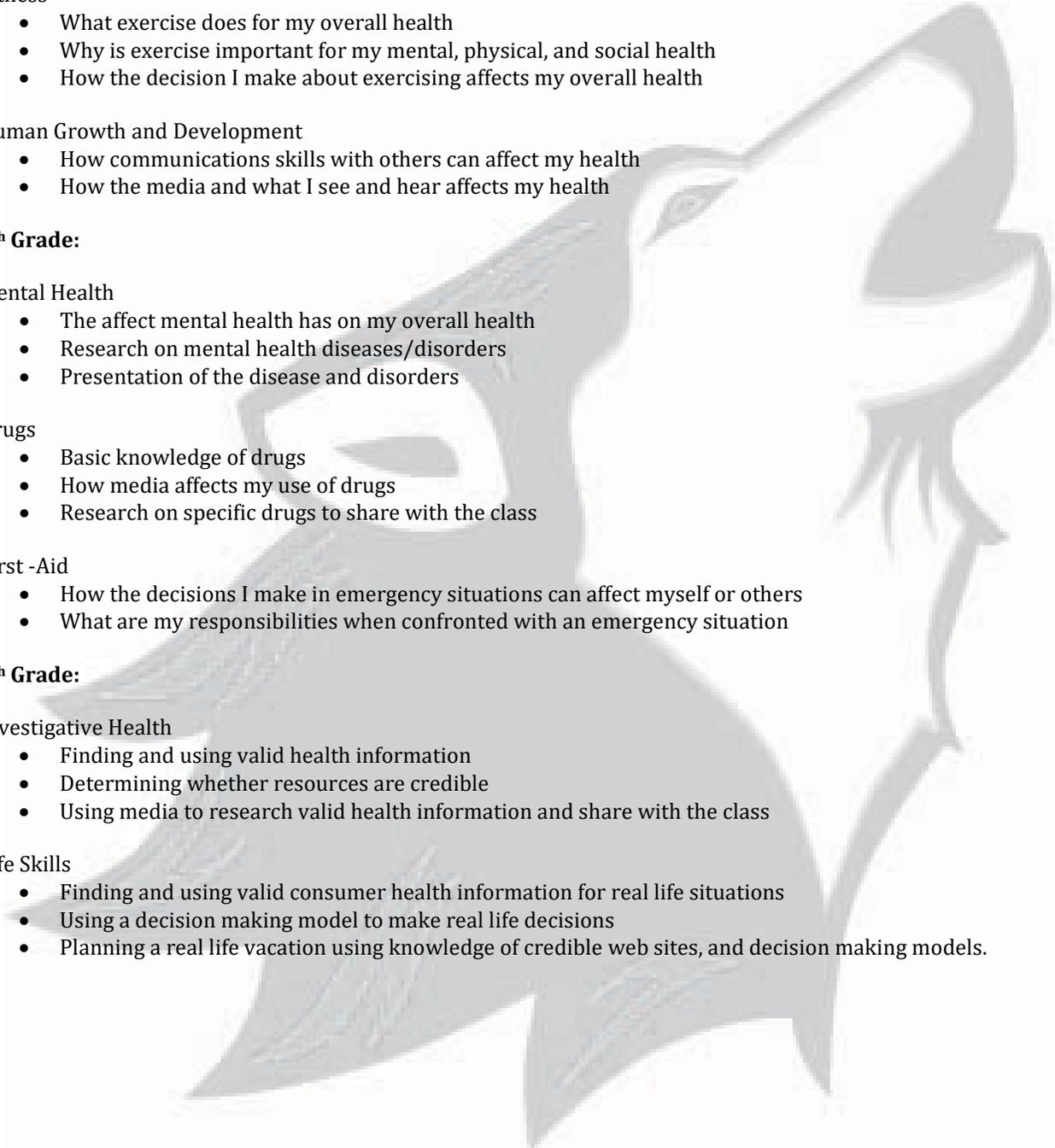
8th Grade:

Investigative Health

- Finding and using valid health information
- Determining whether resources are credible
- Using media to research valid health information and share with the class

Life Skills

- Finding and using valid consumer health information for real life situations
- Using a decision making model to make real life decisions
- Planning a real life vacation using knowledge of credible web sites, and decision making models.





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Essential Learning

Grade/Course: MS Science of Technology PLTW- GTT

Essential Knowledge:

Students will develop an understanding of the characteristics and scope of technology.

- New products and systems can be developed to solve problems or to help do things that could not be done without the help of technology.
- The development of technology is a human activity and is the result of individual and collective needs and the ability to be creative.
- Technology is closely linked to creativity, which has resulted in innovation.

Students will develop an understanding of the role of society in the development and use of technology.

- Throughout history, new technologies have resulted from the demands, values, and interests of individuals, businesses, industries, and societies.
- The use of inventions and innovations has led to changes in society and the creation of new needs and wants.
- Social and cultural priorities and values are reflected in technological devices.
- Meeting societal expectations is the driving force behind the acceptance and use of products and systems.

Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

- Technological systems often interact with one another. A product, system, or environment developed for one setting may be applied to another setting.
- Knowledge gained from other fields of study has a direct effect on the development of technological products and systems.

Essential Questions:

1. What does a chemical engineer do?
2. What is the difference between a chemical engineer and a chemist?
3. Where would a chemical engineer work?

1. What is nanotechnology?
2. How many meters are in a nanometer?
3. Why do we want to make or study such small things?
4. How will nanotechnology affect my life?
5. What tools are necessary to "see" and manipulate at the nanoscale?

1. What is the purpose of using a simple or compound machine?
2. What is the difference between a simple and compound machine?
3. If energy cannot be created or destroyed, why do we need to be concerned about our energy sources?
4. What is the relationship between potential energy and kinetic energy?
5. How do subsystems interact to create a system?
6. Why is the design process used when creating new products?

Units:

1. Applied Chemistry
2. Nanotechnology
3. Applied Physics





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Essential Learning

Grade/Course: MS Automation and Robotics PLTW- GTT

Essential Knowledge:

Students will develop an understanding of the cultural, social, economic, and political effects of technology.

- The use of technology affects humans in various ways, including their safety, comfort, choices, and attitudes about technology's development and use.
- Technology, by itself, is neither good nor bad, but decisions about the use of products and systems can result in desirable or undesirable consequences.
- The development and use of technology poses ethical issues.
- Economic, political, and cultural issues are influenced by the development and use of technology.

Students will develop an understanding of and be able to select and use energy and power technologies.

- Energy is the capacity to do work.
- Energy can be used to do work, using many processes.
- Power is the rate at which energy is converted from one form to another or transferred from one place to another, or the rate at which work is done.

Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

- Troubleshooting is a problem-solving method used to identify the cause of a malfunction in a technological system.
- Invention is a process of turning ideas and imagination into devices and systems. Innovation is the process of modifying an existing product or system to improve it.
- Some technological problems are best solved through experimentation.

Essential Questions:

1. What limitations do you think should be placed on the use of robots?
 2. What type of robot do you think makes the most significant contribution to our lives today and why?
 3. What is the greatest concern that should be considered before converting a factory from a human workforce to a robotic workforce?
 4. What impact do you think robots will have on your life in 10 years and in 50 years?
-
1. Why is it important for you to learn about mechanisms?
 2. What is the purpose of being able to change speed, force, torque, direction, and types of motion with a mechanism?
 3. Describe where you see mechanisms used in three real-life applications and explain the purpose of using a mechanism for that application.
-
1. How does automation enhance our daily lives?
 2. How can you apply troubleshooting skills that you developed in this lesson to your daily life?
 3. How do comments improve a computer program?
 4. Why is good communication and teamwork important when solving technological problems?

Units:

1. What is Automation and Robotics?
2. Mechanical Systems
3. Automated Systems





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Essential Learning

Grade/Course: MS Medical Detectives PLTW- GTT

Essential Knowledge:

Students will develop an understanding of and be able to select and use medical technologies.

- Advances and innovations in medical technologies are used to improve healthcare.
- Sanitation processes used in the disposal of medical products help to protect people from harmful organisms and disease, and shape the ethics of medical safety.
- The vaccines developed for use in immunization require specialized technologies to support environments in which a sufficient amount of vaccines is produced.

Students will develop the abilities to use and maintain technological products and systems. Students will develop an understanding of and be able to select and use medical technologies.

- Use computers and calculators in various applications.
- Advances and innovations in medical technologies are used to improve healthcare.

Students will develop an understanding of the characteristics and scope of technology. Students will develop an understanding of and be able to select and use medical technologies. Students will develop an understanding of and be able to select and use agricultural and related biotechnologies.

- New products and systems can be developed to solve problems or to help do things that could not be done without the help of technology.
- Advances and innovations in medical technologies are used to improve healthcare.
- Biotechnology applies the principles of biology to create commercial products or processes.

Essential Questions:

1. What can patient signs and symptoms tell us about what's happening in the human body?
2. How do medical detectives investigate their cases?
3. What does effective teamwork look like?

Units:

1. What is a Medical Detective?
2. Mysteries of the Human Body Systems
3. Murder Mystery



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Essential Learning

Grade/Course: MS Magic of Electrons PLTW- GTT

Essential Knowledge:

Students will develop an understanding of the characteristics and scope of technology. Students will develop an understanding of the core concepts of technology.

- Technology is closely linked to creativity, which has resulted in innovation.
- Technological systems can be connected to one another.

Students will develop an understanding of and be able to select and use energy and power technologies.

- Power systems must have a source of energy, a process, and loads.

Students will develop an understanding of and be able to select and use information and communication technologies.

- The use of symbols, measurements, and drawings promotes a clear communication by providing a common language to express ideas.

Essential Questions:

1. Why are the safety considerations and best practices associated with working in electronics important?
 2. How can the periodic table be used to help predict whether a material will be a good conductor?
 3. Why do electricians need to measure current, voltage, and resistance when creating a circuit?
-
1. How are series and parallel electrical circuits similar? Different?
 2. Why is it important that those who create and use circuit diagrams use common symbols or conventions?
 3. Why is the mathematical relationship expressed through Ohm's Law so important for designing and evaluating electrical circuits?
-
1. What is the difference between how humans and computers think and make decisions?
 2. Why is the understanding of binary and decimal number systems essential to your ability to design combinational logic circuits?
 3. What might a design process look like for creating an analog or digital circuit?

Units:

1. What Is Electricity?
2. Electronics
3. Digital Electronics